

# Railway Age

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## "Showing the Way" in Highway Transportation

IN another part in this issue appear two papers giving specific information regarding important installations of highway transportation service by steam railroads. These papers were presented before a meeting of the Society of Automotive Engineers in Philadelphia last week. Specifically, they deal with the Boston & Maine's activity in the handling of passenger traffic by highway and the use of motor trucks by the Pennsylvania for the handling of l.c.l. business. The first subject was covered in a very thorough manner by H. F. Fritch, president of the Boston & Maine Transportation Company, which is the B. & M. subsidiary for motor bus and motor truck business. The second report was presented by Joseph L. Scott, a member of the trucking firm which is handling the Pennsylvania's l.c.l. business under contract. It is our belief that the information conveyed in these papers, bearing as they do on actual accomplishment and not mere theory, will be of considerable value to other railroads contemplating entry into the highway transportation field. And railroads are entering this field in considerable numbers and others are carefully weighing its possibilities.

## The Monmouth Junction Collision

THE rear collision of November 12 near Monmouth Junction, N. J., constitutes the most complete argument for the use of automatic train control that could be cited; for the visual block signal system broke down where it was being operated under the most favorable conditions to be found anywhere. The line of the railroad is straight and level. The engineman, 60 years of age, is one of long experience on this line, and with a good record. The signals are on bridges immediately over the track. The cautionary signal is about 4,200 ft. in the rear of the stop signal. The block sections for many miles are of approximately uniform length (less than one mile) so that the engineman of a fast train who is watching for the signals can have no excuse for "losing his bearings" or for becoming confused or doubtful about whether he has passed a given signal. Generally speaking, an experienced runner, in good health, used to operating fast trains over a line with which he is fully acquainted, is supposed to have erred, in a case like this, by reason of brief absent-mindedness; but where the signals come before his eyes at intervals of only about one minute, this theory or assumption becomes hazy, and does not enlighten us. The engineman himself may possibly know something of the processes of his mind; but any other person, attempting by reasoning to account for the runner's conduct, is non-plussed. And there are innumerable cases where the runner is not able to explain, even to himself, how his mind has been working. The whole crisis passes so quickly. As in a number of other recent cases, the bodily and mental health of the engineman will here be a subject of inquiry; but for any light

on that point we shall have to wait until the Interstate Commerce Commission makes its report. The Pennsylvania is on record as having decided to spend \$7,000,000 for automatic train control apparatus; and, indeed, has been spending lavishly on experiments in this direction for years. This will be its answer to the public. But for the operating officer the problem of making enginemen 100 per cent efficient remains a pressing one, nevertheless.

## Securing Neatness in Appearance of Uniformed Employees

ON another page is published a short article by E. T. Whiter, vice-president in charge of the Central region of the Pennsylvania, describing a highly successful—and inexpensive—method employed by that road to encourage neatness in appearance on the part of train service men. The method is simplicity itself. The road invited a tailor to set up a suit cleaning and pressing establishment in the station at Pittsburgh, with the understanding that in return for free rent and a large volume of business he would charge prices much lower than those prevailing elsewhere. The results were eminently satisfactory: At the last semi-annual inspection of train service employees, the number whose attention had to be called to their untidy appearance had decreased 87½ per cent. Mr. Whiter wrote this brief account following the reading of an editorial in the *Railway Age* of October 24 wherein such a solution of the problem of securing neatness on the part of train service employees was suggested. Action such as this on the part of the management costs little, but it constitutes a most effective plan for securing the neatness which should characterize those railroad men who come into contact with the public.

## Development of Supervisors

THIS fall has witnessed a wide extension in the railroad field of the interest in a study of the methods of better leadership on the part of supervisors of all kinds, and particularly of the mechanical department officers and foremen. In some cases clubs or associations have been formed; in others intensive courses of study have been taken up or a series of lectures arranged for. The Department of Manufacture of the Chamber of Commerce of the United States has recently issued a survey or study on "The Fundamentals in the Development of Industrial Foremen" in which it wisely places special stress on the advisability of definitely planning to follow up such leadership or foremanship courses. A number of industrial organizations which were very much gratified at the results of the courses "frankly admitted that they were anxious to continue, but ran out of material, and desired suggestions." The Federal Bureau for Vocational Education has given this matter much consideration

and has published a list of possible plans for following up intensive foremen's conferences held under its direction, which usually extend over a period of only a couple of weeks. It is important for supervisors and foremen, no matter how thorough their training may have been, to adopt some means of keeping in touch with the best thought and practices concerning management and related subjects; in other words, that some sort of a local clearing house be set up through which they may be kept in touch with the developments on other railroads or in the industries. This matter of following up foremanship courses should not be overlooked by those who have taken up the work this fall and are more or less enthusiastic over the progress made thus far.

### Freight Car Orders Increase

**T**HE *Railway Age* reported in its issue of November 7 orders for 4,000 freight cars and in its issue of November 14 orders for 7,848 cars. This makes a total of 11,848 cars for two weeks and already makes November—although figures for only one-half the month are in—the heaviest month from the standpoint of freight car purchases since September of last year. In fact, there were only three full months in all of 1924 in which the November two-weeks total was exceeded. There have been none in 1925 and, indeed, the November two-weeks total is approximately equal to the total of the two best preceding months of 1925 with the exception of January, in which orders reached a total of over 10,000. The amount of railway buying of cars and locomotives this year is shown in the following table:

	Locomotives	Freight cars	Passenger cars
January .....	27	10,312	78
February .....	49	5,388	90
March .....	106	4,677	111
April .....	84	5,525	104
May .....	51	8,944	22
June .....	16	777	34
July .....	39	843	362
August .....	26	2,816	9
September .....	86	6,113	37
October .....	199	5,556	134
Total, 10 months.....	683	50,951	981
November—2 weeks.....	23	11,848	17

Equipment orders this year have not been satisfactory. The explanation offered has been that improved utilization of present equipment has made unnecessary the accretion, the southern and southwestern roads remained out in many quarters that the railways have not had in recent years a "normal" increase in the volume of traffic or, in other words, that railway traffic since the war has increased in a lower ratio than was customary before the war. The increased utilization must have been a more potent force in minimizing purchases of equipment than the failure of traffic to increase in greater ratio. This is indicated by the fact that while in 1924 railway ton-miles on the railways of the country as a whole were but 14 per cent in excess of those in 1916, the ton-miles of the railways in the South were 54 per cent greater, and of the lines in the Southwest 43 per cent greater. Nevertheless, the southern and southwestern roads remained out of the market about as much as the others. The situation has now changed. It is noteworthy that the better part of the recent orders and inquiries are from southwestern roads. Thus, the Frisco has ordered 4,000 cars and the Missouri Pacific 3,000 while the Santa Fe has an inquiry out for 3,000. The New York Central and the Wabash, the former of which has ordered 4,500 cars and the latter of which has an inquiry out for 2,000 are not southwestern roads although they do get a substantial amount of traffic from those roads at St. Louis.

## What Will the Railways Be Allowed to Earn?

**T**HE guarantees of net return made to the railways as a result of government operation and of the conditions under which they were returned to private operation expired on September 1, 1920, and ever since then their managements have been engaged in a great struggle to restore their pre-war earning capacity and to attain the annual return of  $5\frac{3}{4}$  per cent on the value of their properties to which the Interstate Commerce Commission has held that they are entitled.

The Class I roads as a whole at last have begun to earn this return. Their net operating income of \$133,626,434 in August and of \$134,584,916 in September was the largest ever earned by them in two consecutive months. Computed on the basis of the tentative valuation made by the Interstate Commerce Commission in 1920 plus investment since made, it was in August at the annual rate of 6.12 per cent and in September, 6.35 per cent. It brought the return earned on the tentative valuation during the first nine months of this year up to an annual basis of 5.56 per cent. These figures, as indicated above, are for the Class I railways as a whole. The southern and eastern lines are doing as good as or better than the average, and the western railways not so well.

The improvement in the financial situation of the railways reflected by these figures is gratifying, but this improvement creates problems and dangers which cannot be safely ignored. As President Markham of the Illinois Central said in his address before the National Industrial Traffic League this week: "When we are pleased with the result of our efforts is the very time for us to be most vigilant lest we lose what we have won," and he very pertinently added: "A question that we may expect to hear a good deal about in the near future is this: What interpretation shall be placed upon the rate-making provisions when the return specified is reached?"

As has been repeatedly pointed out in the *Railway Age*, a danger with which the railways and the public which is dependent upon them for good and adequate service are confronted is the widespread tendency to regard the so-called "fair return" as a maximum to which the railways should be restricted. On this theory whenever a group of roads is earning more than the "fair return" its rates should be reduced. The fallacy of this theory must be exposed and the results that it would cause be made clear to the public, or all that has been accomplished during the last five years in increasing the earning capacity of the railways and restoring the confidence of investors in their securities will be lost.

The Transportation Act directs the commission to so adjust the rates of the railways as to enable them "as nearly as may be" to earn a fair annual return. This does not mean the rates must be so adjusted as to enable the railways to earn a fair return in every year, and the actual administration of the act by the commission during the last five years shows that it has not placed this interpretation upon it. The commission has during these years so regulated rates that no group of railways has earned anywhere near the average of  $5\frac{3}{4}$  per cent. In other words, the commission has not treated the return as a minimum which the railways must be allowed to earn in bad as well as in good years. But if it cannot be logically held to be a minimum, then neither can it logically be held to be a maximum, but it must be held to be an average for periods of years including both years when business is bad and when it is good.

The railways, as already stated, completed five years of



operation without guarantees under the Transportation Act on August 31, 1925. Since the "fair return" must logically be held to be an average to be earned over periods of years, the financial results of the railways during the five years ending on August 31, 1925, may properly be taken as a basis for computations as to what they should be allowed to earn during the next five years. The railways do not accept the commission's tentative valuation as a fair basis for computing the percentage of return they are earning or are entitled to earn, but for the purposes of this discussion it will be taken as such. The commission first held that the railways were entitled to earn 6 per cent and later  $5\frac{3}{4}$  per cent. If they had earned the percentages held reasonable by it, the total net operating income of the Class I roads in the five years ended August 31, 1925, would have been \$5,536,500,000. The net operating income actually earned was \$4,247,000,000 or at the annual rate of 4.47 per cent. The total shortage in the return earned was \$1,289,500,000, or an average of almost \$258,000,000 annually. The railways would have to earn an average of 7 per cent on their tentative valuation during the next five years to bring their average return under ten years' administration of the Transportation Act up to  $5\frac{3}{4}$  per cent.

If the railways of the western group in the five years ended August 31 had earned on their tentative valuation the percentages which the commission held would be fair, their total net operating income in these years would have been \$2,359,128,000. The net operating income actually earned by them was \$1,685,249,000, or an annual average of 4.16 per cent. The deficiency in the fair return was \$673,879,000. They would have to earn an average of 7.34 per cent on their tentative valuation during the next five years to bring their average for ten years' operation under the Transportation Act up to  $5\frac{3}{4}$  per cent.

The tentative valuation of the railways is substantially less than their property investment account. Consequently, the percentage of return that has been earned on property investment is much less than that which has been earned on tentative valuation. The net return earned by the railways as a whole for years before government operation was adopted was inadequate, but in the seven and one-half years ending with 1917 it averaged 4.9 per cent on property investment, while in the five years since the government guarantees were withdrawn it has averaged only 3.94 per cent. The railways would have to earn an average of 5.84 per cent on their property investment during the next five years to bring their average return on property investment up even to the 4.9 per cent which they earned during the seven and one-half years immediately preceding government operation. Even in September, with its record-breaking net operating income, the return earned was at the annual rate of only 5.42 per cent on property investment.

We have now had a five years' test of the rate-making provisions of the Transportation Act. That test has indicated that these provisions are of no value except as an assurance of what kind of regulation the railways and investors in their securities may expect in future. The policy that has been followed by the commission in administering the law can be justified only upon the ground that business conditions have been such that the commission would not have been warranted in so fixing freight and passenger rates as to enable the railways to earn the specified return. With business conditions restored to normal and the return being earned by the railways largely increased, we are now entering upon a much more critical and conclusive test of the rate-making provisions of the act. Whether these provisions are of any value will be determined by whether

the commission, after having kept rates down for five years when the railways were earning less than a fair return, will make and keep them high enough when business is good to bring the average return earned over a period of years up to what the commission itself has held to be fair return and necessary.

## Railways as Manufacturers

IT is not surprising that the Railway Business Association devoted its annual meeting in New York last week largely to discussion of the railways as manufacturers. The association is composed of manufacturers of railway equipment and supplies who are dependent upon the railways for their market. Their business is affected by the extent to which the railways engage in manufacturing for their own needs. Two organizations, one composed of companies engaged in building and repairing freight cars, and the other companies making nuts, rivets, bolts, etc., have within recent months issued statements opposing the railways going into manufacturing any more than is necessary to carry on their primary business as carriers of goods and passengers.

The principal participants in the discussion at the meeting in New York, which was reported in the *Railway Age* for November 14, were J. M. Davis, president of the Delaware, Lackawanna and Western, who for a few years was in the railway supply business as president of Manning, Maxwell & Moore, Inc.; E. B. Leigh, president of the Chicago Railway Equipment Company, and D. F. Crawford, vice-president of the Locomotive Stoker Company, who formerly was superintendent of motive power and later general manager of the Pennsylvania Lines west. Mr. Davis expressed it as his own opinion "that the railroads should devote their energies to the handling of transportation and that manufacturing should be left to the manufacturers." Manufacturers participating in the discussion endorsed this view, and advanced economic arguments in support of it.

The question of the extent to which the railways should engage in manufacturing might naturally be expected to be settled entirely according to the conclusions of their officers as to what policy would be economically best for the railways. The question, however, is not entirely one of economics. In 1920, when the railways were overloaded with traffic and had a large amount of bad order equipment as a legacy from government control, they contracted with outside companies for the repair of part of this equipment. The Interstate Commerce Commission, in a report rendered months afterwards, censured them severely upon the ground that the equipment could have been repaired more economically in their own shops, although in 1920 the demands upon their shops exceeded their capacity. The report of the commission was extensively used as propaganda by labor leaders, who exert all the pressure they can to increase the work done in railway shops. The railways, naturally, are not disposed entirely to disregard the attitude that may be assumed by the commission toward policies adopted by them.

The commission, however, in connection with its determination of what net return the railways may earn, is charged with the duty of satisfying itself that they are honestly, efficiently and economically managed; and it should recognize, what every unbiased student of economics in general and of railway economics in particular must recognize, that it cannot be reasonably assumed that the railways can do manufacturing as economically as concerns devoted exclusively to that business. The railway is engaged primarily in producing

transportation. All of its higher officers are transportation men. It must do some manufacturing to conserve materials and carry on its transportation business, but manufacturing is necessarily subordinate to its main business. Therefore, manufacturing will never receive from its higher officers much attention and supervision unless there is created a special department for that purpose officered by men of ability who will devote themselves exclusively to manufacturing. On the other hand, the best brains of a strictly manufacturing concern are devoted to work of improving its product and reducing costs of production.

The railway as a manufacturer is virtually without competition. A concern which is engaged exclusively in manufacturing is subject to severe competition and therefore has the efficiency of its management tested and stimulated in ways that the manufacturing done by a railroad seldom or never is tested and stimulated.

One of the greatest differences between manufacturing by railways and by manufacturing concerns is with respect to accounting. Under the present system of accounting a railway may easily deceive itself as to its manufacturing costs, and excessive manufacturing costs may be absorbed and covered up in its transportation business. On the other hand, if an outside manufacturer incurs excessive costs they cannot be absorbed and covered up in some other line of activity, and he will suffer losses which will put him out of business.

Perhaps, however, the most important point of all relative to this subject is as to the way in which the railway should use its available capital. Because of the policy of regulation to which the railways are subjected most of them have great difficulty in raising sufficient capital to enlarge and improve their transportation facilities. Now, if a million dollars is invested in a shop to do certain kinds of manufacturing work, that same million dollars cannot be used to reduce grades, or install block signals, or enlarge some freight terminal. If a choice must be made as to which way a given amount of money shall be used there can be little doubt as to what the decision should be. There is little or no need for the railways to invest capital to provide for themselves what manufacturers can provide for them. There is very great need on almost every railway for the use of capital in providing things which no manufacturer can provide.

The most important use railways have for capital is for enlarging their capacity for handling freight and through passengers. Their total passenger business has declined and even their freight business has not increased at a normal rate within the last five years. This is the main reason why they now have surplus capacity. There is no reason for doubting, however, that their freight business will increase in the future, and statistics of their passenger business within recent months indicate that the decline in it has stopped.

Public sentiment will never become aroused against the railways because they do not go into manufacturing, but it will become aroused against them if they fail to increase their capacity enough to handle traffic satisfactorily. Therefore, the question whether the railways can manufacture equipment and materials economically is of much less importance than the question whether all the capital they can raise on reasonable terms will not be required to enlarge and improve their transportation facilities sufficiently to give the adequate economical and safe transportation service that public sentiment will demand.

There remains still another point of no small importance to consider. Leaders of labor unions want the railways to engage more extensively in manufacturing for two principal reasons. One is that, from the standpoint of the union leaders, conditions of work are more favorable in railway than in outside shops. The other is that the

more manufacturing work there is done in railway shops and the less there is done for railways in outside shops the more difficult it will be for every railway to win a strike in its shops by having work done by contract in outside shops. This is a legitimate argument from the standpoint of railway labor union leaders for railways engaging in manufacturing, but the experience of the roads in 1922 does not help to make it a persuasive argument from the standpoint of the railways themselves.

Of course, the paramount question for officers of railways to consider is, what policy will be best in the long run for the railways themselves. Their concern is primarily with the welfare of the railways and only secondarily with that of the manufacturers. If, however, this question is considered carefully in all its aspects it seems doubtful if a conclusion will be reached in favor of any more manufacturing by railways than is necessarily incidental to conducting their transportation business. The Lackawanna is in as good a position to raise capital for manufacturing as any railway; its president has had not only long experience in railway service, but also experience as a manufacturer; and therefore the views expressed by President Davis are unusually significant.

## Where Users of Material Err

WHEN going through a shop recently a general storekeeper was approached by a general foreman who complained regarding the stores department's repeated failures to supply him with material when needed. The stores officer responded with the remark that he was just the man he (the stores officer) was looking for, for preparations were then being made to purchase the requirements of this class of material for the next six months, and that if the foreman would make his wants known the stores department would have the supplies ready for him. When the general foreman declared that this was impossible for him to do, he was placed in the predicament of explaining how he could expect the stores department to do for him, or at least without his assistance, what he could not do himself.

The lesson in this incident is too important to be lost. Many users of material throughout the country either have forgotten or have never been impressed with the importance of estimating in advance with some degree of accuracy what their future requirements for material will be, as a factor in getting the supplies they want. Where estimates are obtained they are frequently furnished under protest or without a full appreciation of their significance, with the result that they are hastily prepared and woefully inaccurate. An illustration of this inaccuracy was furnished a short time ago when a railroad compared the preliminary engineering estimate furnished by one of its divisions for bridge materials with the quantities of material used. This comparison showed that while the preliminary estimate called for 100 bridge caps for the year, the number actually called for on the work sheet was 523, and that while the engineering estimate called for 2,500 guard rails the work sheet called for 10,404. Again, in the case of bridge ties the estimate showed 1,500 as compared with 2,295 on the work sheet. It is evident that if the requirements had been based solely upon the preliminary estimate a severe shortage of material with all its attendant evils would have resulted in this case when the time came for using these supplies.

Fortunately stores officers are often in a position, with their old records and their knowledge of conditions, to protect the users against shortages, but manifestly it cannot be expected that stores officers will meet all



emergencies. Neither can it be expected that preliminary estimates will forecast future requirements correctly. But these facts do not lessen the need for real care on the part of users in anticipating their future needs as closely as possible. The mechanical officer almost invariably prides himself on his accuracy in appraising the strength of the material he uses. Likewise the engineer is prepared on a moment's notice to appraise the lasting power of the ties in his track or of the period in which he can complete a structure. His ability to do these things arises chiefly from the interest displayed in that phase of his work and from the comprehensive records of past experience in these avenues of activity. In view of this it may well be wondered why such officers are frequently so deficient in anticipating their wants for material. In all probability the principal need is for increased realization of the importance of a closer interest in the subject of material and greater care in the preparation of estimates. But whatever the explanation or the solution, it nevertheless remains that in anticipating today what he will need tomorrow in the way of material the user of material all too frequently falls down.

## Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian,  
Bureau of Railway Economics, Washington, D. C.)

### Books and Pamphlets

*Advertising and British Art*, by Walter S. Sparrow. British railways' contribution to reform in advertising, pages 165-189. Many of the British railway posters are reproduced in color. 189 p. Pub. by John Lane, London. Available in U. S. through E. P. Dutton, New York. \$12.

*The Indian Railways*, by Chandrika Prasada Tiwari. Historical, economic and administrative aspects discussed. 552 p. and 114 p. containing appendices, indexes, etc. Pub. by Scottish Mission Industries Co., Ltd., Ajmer, India. 10 Rupees.

*National Directory of Commodity Specifications*, compiled by U. S. Bureau of Standards. Its misc. publication No. 65 containing classified and alphabetical lists and brief descriptions of existing commodity specifications. 379 p. Pub. by Govt. Print. Off. Washington, D. C. \$1.25.

*Report of the United States Coal Commission*. Part I contains findings and recommendations, Part II a detailed study of anthracite coal industry, Parts III and IV a detailed study of bituminous coal industry, while Part V is an atlas of statistical tables. U. S. 68th Cong., 2d sess., Senate Doc. 195. 2719 pages and Atlas. Pub. by Govt. Print. Off., Washington, D. C. \$4.40.

### Periodical Articles

*Carriers' Associations*, by Asa S. Colton. Article IV, Pt. I of his "Traffic Associations." Shipper & Carrier, November, 1925, p. 7-8, 62.

*The Chinese Eastern Railway*, by Chin-Chun Wang. "With a length of only 1067 miles and an average gross earning of about 30 million dollars per annum, the Chinese Eastern Railway has certainly acquired more notoriety than any other railway of its length." p. 57. Annals of the American Academy of Pol. & Soc. Science, November, 1925, p. 57-69.

*Electric and Petrol Transport of Passengers in America*, by Walter Jackson. Reviews history of street, inter-urban, and electrified steam railroads, and of motor transport, and also gives English and American equivalent terms. Journal of the Institute of Transport, November, 1925, p. 10-26.

## Letters to the Editor

[The RAILWAY AGE welcomes letters from its readers and especially those containing constructive suggestions for improvements in the railway field. Short letters—about 250 words—are particularly appreciated. The editors do not hold themselves responsible for facts or opinions expressed.]

## Passenger Coaches and Bus Competition

NEW YORK CITY.

TO THE EDITOR:

I wonder whether, in discussing the inroads made by automobile and bus traffic upon the passenger train traffic of our railroads, sufficient thought is being given to the general character of our passenger train equipment. Very little change for more and better comfort has taken place in that equipment in recent years. Indeed, the standard passenger car is very much of an abomination, especially on hot summer days. Its plush cushions, its double windows opening in many instances only a few inches, and its consequent lack of proper ventilation make traveling a torture instead of a pleasure. A country like the United States with its variety of climates is the last one that should adopt a standard type of equipment. Yet we see on the border of Mexico and way down south the same sort of passenger car used way up in the north. Is it any wonder that the modern bus with its comfortable seating capacity makes an appeal to the weary traveler?

RUDOLPH DIAMANT.

## Reasonable Burdens for Dispatchers

SAN FRANCISCO.

TO THE EDITOR:

Concerning the question of the inadvisability of divided responsibility in the handling of train orders: Let us reason it out from a really safety standpoint. At a hospital the number of sponges inserted and taken from an abdominal operation are counted and recounted, checked and rechecked by not less than three persons. No chances are taken by depending upon one individual not to make a mistake in counting.

Under Rule 99, the division superintendent requires his trainmasters to constantly observe the performance of trainmen to see that there are no failures to flag. Engine-men must signal for protection at times and conductors must see that their flagmen act promptly and invariably. No one would care to depend entirely upon an unsupervised flagman on the theory that he would never fail to protect his train.

An officer may have a very competent chief clerk or stenographer; still he must read every letter handed him to sign; often he finds errors. When interpretations of rules are furnished for the guidance of employees it would not do to dictate such decisions and pass them out to the men without reading them over and over. They must be checked by several persons to insure that they are right.

None of these matters are more vital than train orders; then why depend entirely upon a telegrapher in the matter of clearing trains by clearance cards which call for

certain orders necessary for the crews to have, without at least having one other person verify his cards as he intends to deliver them?

Train dispatchers should O. K. the order numbers on clearance cards, but with this it is important to add that it is extremely dangerous to require a train dispatcher to handle more territory than he can supervise comfortably. I do not think a dispatcher should be expected to issue more than 40 orders a day on his trick, except in emergencies. It would be a mistake to relieve dispatchers of the duty of checking the work of telegraphers in every way possible; but that is not saying that it is in the interest of safety to assign to a train dispatcher more work than he can do without distress and anxiety.

HARRY W. FORMAN.

## Keep Passenger Trains On Time

HAILEYVILLE, Okla.

TO THE EDITOR:

Since the bus lines are taking so much of the passenger business from the railways, it seems to me that it is highly important that passenger service should be made as nearly perfect as possible. One essential is to keep passenger trains moving without delay. It is doubtless very annoying to passengers on a train to have to wait for ten minutes or so on a blind siding for a freight train, especially when the freight train does not arrive. It looks worse for the passenger train to head in on a siding to pass a freight train standing on the main track. Passengers naturally suppose that a passenger train should take preference over a freight train. In some cases, especially on branch lines, dispatchers are instructed to put passenger trains on sidings for freight trains, giving certain freight trains time on passenger trains in order to save overtime. In many instances this practice causes passenger trains to miss connections with other lines, resulting in dissatisfied passengers. Furthermore, on a road where there are many trains, a delay of ten minutes for a passenger train to help one freight train may result in more overtime for other freight trains farther down the line during their run than was eliminated by the first move. It is presumed that a passenger train may recover ten minutes lost and the dispatcher so figures, but if the train does not make up time and loses more, passing several freight trains ten or fifteen minutes late and perhaps a work train with a number of laborers who have been kept waiting for the passenger train, it is apparent that there is a serious loss to the railway company. Passenger service is an advertisement and should not be slighted.

J. L. COSS.

Train Dispatcher, Rock Island Lines.

## Dirty and Out-of-date Day Coaches

ALBANY, N. Y.

TO THE EDITOR:

To the traveler who uses mainly the day coaches, the plea of the railroads for more passenger business seems to be misdirected. To attract passengers, the American day coach ought to be very much improved. Has anybody made any systematic attempt to improve the cleanliness, sanitation, size, construction, furnishings or upkeep of the closets for men and women in these cars? Yet even a person of some refinement will often use, from necessity or choice, a coach for two or three hours. And is

it not true that nearly everyone today, accustomed to something much better at his office, hotel and home, finds these closets too small to turn around in, with a basin too small to wash one's hands in, and unequipped with any kind of soap or towels? Surely, it ought not to be made so necessary to take a Pullman for a short journey of seventy or eighty miles.

The handbox size and primitive equipment of the toilets are decidedly objectionable features in these cars. Such roomlets were devised and adopted as standard when the public expected much less than at present; when it expected nothing more than a possible chance. Today it is critical and has only contempt for these archaic conveniences.

In this part of the country I have often been annoyed by the antics of basket-lunchers in the coaches. As the railroads allow fruit, candy, ice-cream and sandwiches to be sold on their trains the practice of lunching in the coaches has become established. Why not localize these basket-lunch parties, as smokers are localized, in a given car? Or, the roads might install a moderate-priced lunch service, with bread, cheese, fruit, tea and coffee, and some meat sandwiches, pies and milk, all the very best; and use half of one of the coaches for carrying the material, etc.

A good lunch service, with wooden (cooler) cars used more frequently in summer, on certain runs, ought certainly to be attractive as compared with riding in a Ford and lunching in a pasture, possibly in the rain.

It may be that I am not fully posted as to all the details, but my main point is that conditions in coach travel have been improved so little, for nearly a generation, that revenues from this largely local source of travel have been an easy prey to modern outside competition.

HENRY OPDYKE.

## Abandonment Due to Highway Competition

HAMMOND, Ind.

TO THE EDITOR:

It would appear that the article by Henry R. Trumbower quoted in the *Railway Age* of November 7, while probably correct, is not an exactly true criterion of the effects of highway competition upon railroad abandonments. So long as we have railroads we will have industrial lines, such as mine and logging roads, abandoned at such time as the natural resources for which the lines were constructed have been worked out.

Abandonments due to competitive causes alone, using Mr. Trumbower's figures, show that nearly half of the lines abandoned because of competition were abandoned because of highway competition:

PRIMARY CAUSE OF LACK OF TRAFFIC

Cause	Number of railroads	Per cent of number of railroads	Length, miles	Per cent of length
Competition of other railroads.....	14	58.2	713.34	87.1
Competition of motor vehicles....	10	41.8	104.46	12.9
Total.....	24	100.	817.80	100.

The article was not intended to, and does not cover the effect of highway competition upon the railroads which is reflected by *train* abandonment rather than *track* abandonment. The article, unless intended as propaganda for motor transportation, to be fair in estimating the effects of motor transportation upon the railroads, should state this fact.

H. R. RICE.





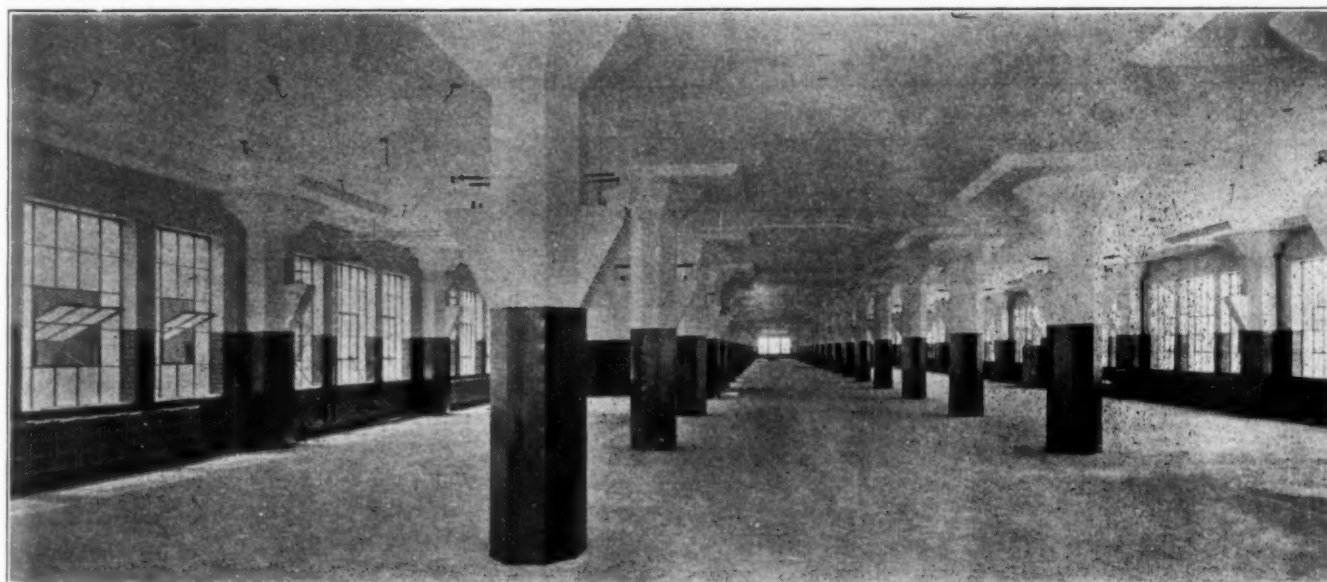
The New Erecting and Machine Shop Has 54 Pits

## Pennsylvania Reconstructs Juniata Shops on a Large Scale

*Existing facilities are rearranged and augmented by new structures of ample capacity for future requirements*

THE Pennsylvania now has in operation a new erecting and machine shop at Juniata in Altoona, Pa., which is probably the largest railway shop building in the world. This new unit is in addition to the extensive facilities which this road has had at Juniata and which have been further augmented by a new store-

house. Altoona is the location of the main shops of the Pennsylvania, the first construction starting in 1850. With the progress of time, the increased business of the railroad warranted continual additions to the shop facilities for both repairs to and the manufacture of cars and locomotives. This subsequently resulted in the establish-



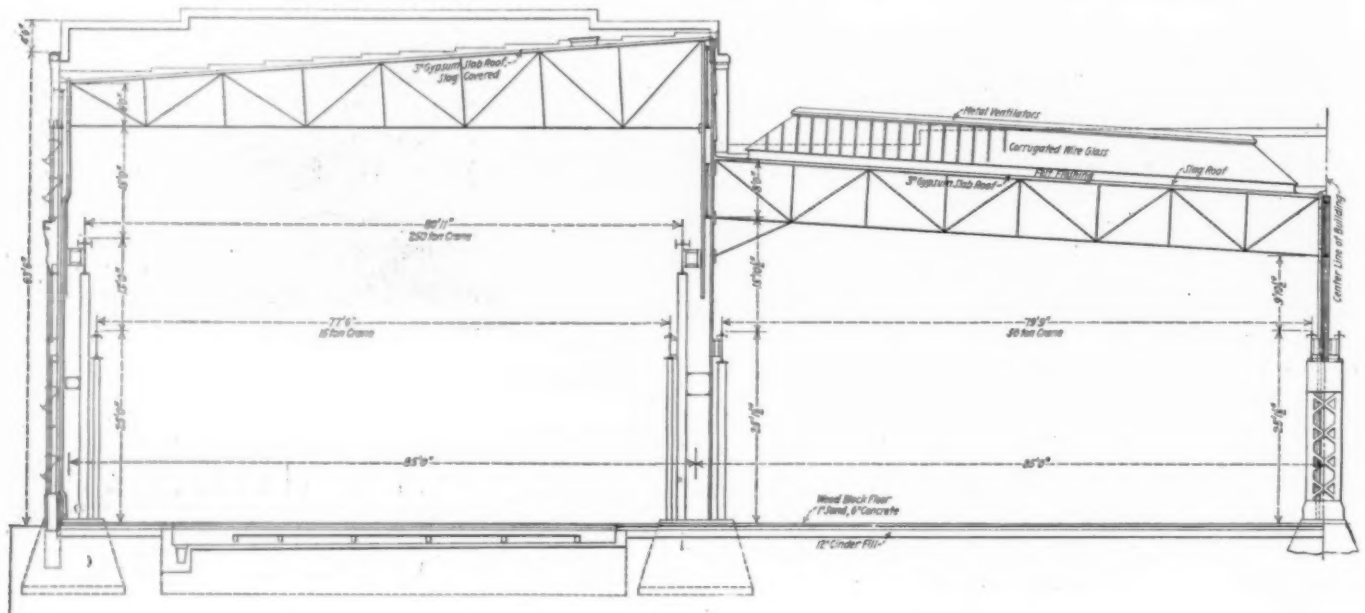
Storehouse Interior, Showing Supports in Crane Runways in Each Bay

ment of grouped units, each for a particular class of work. These include a car repair and construction unit, a foundry, a locomotive machine shop for repairs and the manufacture of repair parts, and an erecting and machine shop for new power, the latter being known as the Juniata shops. With the continued increase in the size and weight of locomotives, it became necessary in recent years, for

house, two welfare buildings, a boiler plant and the reconstruction of previously existing units into a new flue shop and a cab and pilot shop. The new shop is used largely for the erection of new locomotives, that class of work being the primary function of the facilities at Juniata. Repair work, however, is also carried on at this point.

the Pennsylvania to improve the shop facilities for repairing them. A study of the situation led to the reduction of the number of shops on the system for general repairs to 10 locations, the shops to be retained and upon which

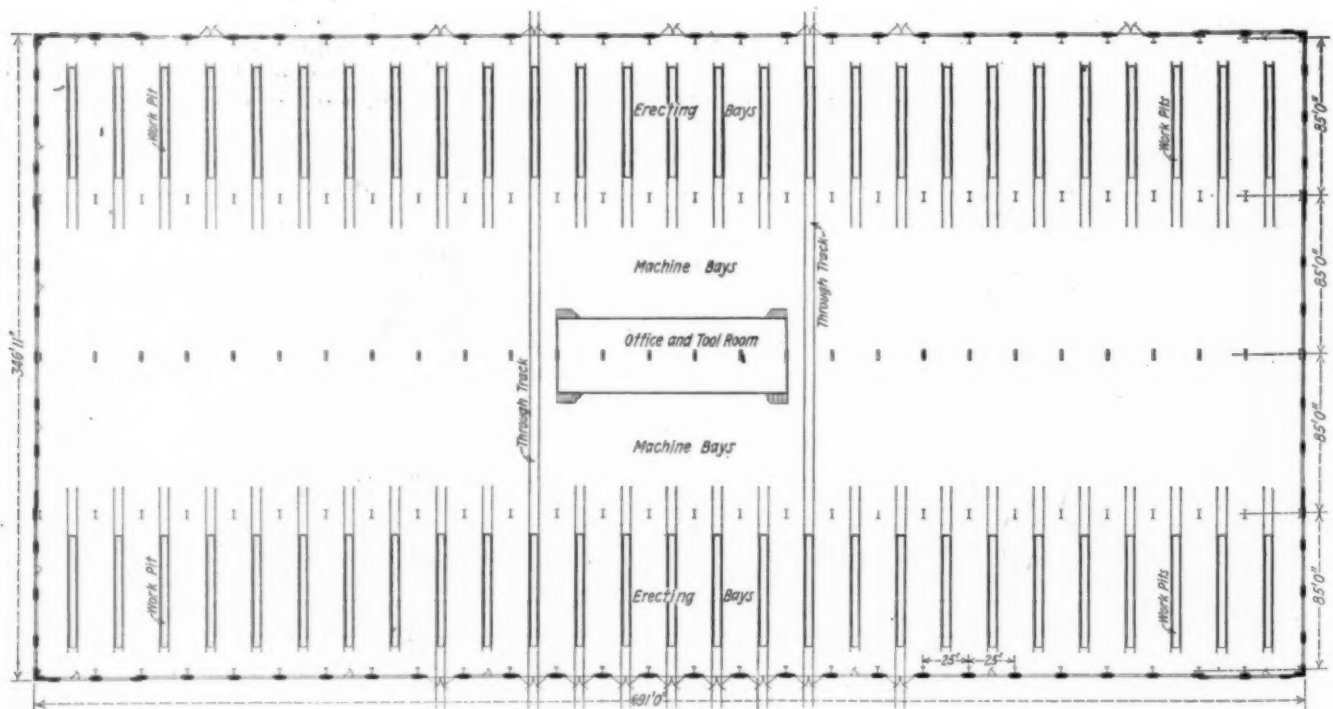
transversely into four bays, of which the outer two bays are for the erecting pits and tracks and the inner two bays for the machine shop. The bays are 85 ft. wide center to center of columns with a minimum clearance



Typical Cross-Section of One-half of the Shop Building

future expenditures are to be made being situated at the Altoona machine shops, Juniata, Trenton, Wilmington, Renova, Canton, Olean, Dennison, Columbus, Fort Wayne

to the roof trusses in the erecting section of 53 ft. and in the machine shop area of 35 ft. Each erecting bay has 27 pits or a total of 54 for the structure as a whole.



Floor Plan of the Erecting and Machine Shop

and Logansport. The extension of the facilities at Juniata was a part of this general plan.

#### A Large Erecting and Machine Shop Unit

The new erecting and machine shop is of the transverse type and covers practically the full width of the shop yard. It is 691 ft. long and 346 ft. wide and is divided

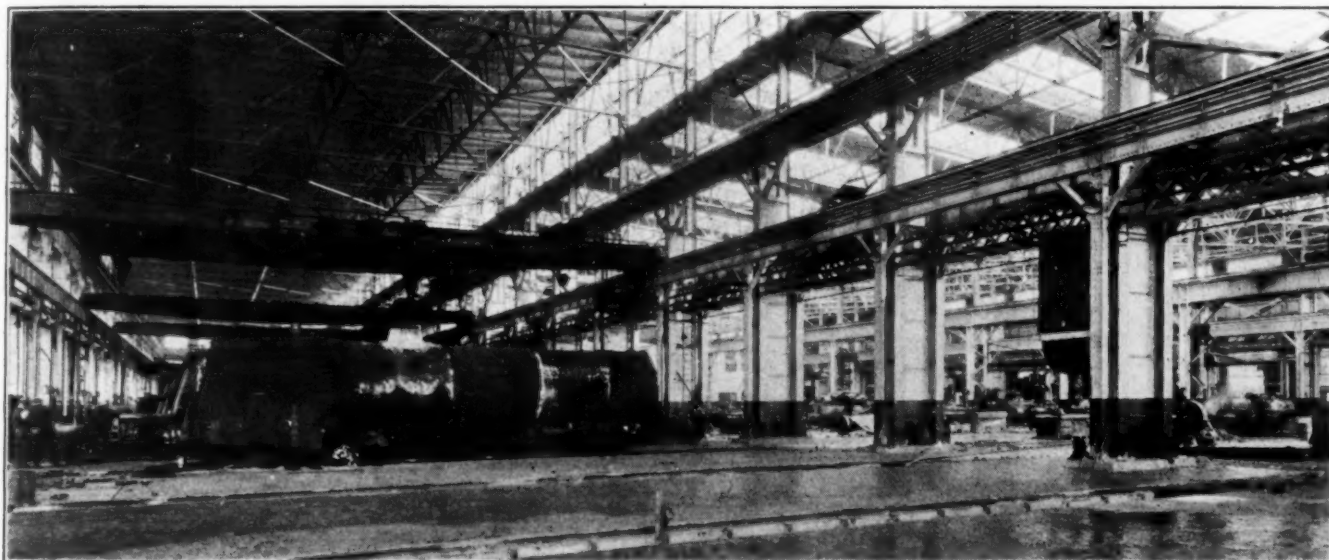
Four pits or two in each bay are devoted to stripping and the remainder to erection. The outside bays have two crane runways, upon the upper of which there is a 250-ton capacity crane with two 125-ton trolleys. This is used for lift-over service for the full length of the shop. The lower runway in each bay carries five 15-ton messenger cranes. Each pit is supplied with all necessary



outlets for air, light, steam and water for washing and testing, etc.

The two inside or machine bays are equipped with motor driven machine tools, no shafting being employed throughout the shop. The crane runways in each bay

a 6-in. concrete base surfaced with 3-in. creosoted wood block paving. The shops are heated by 22 motor-driven, fan-operated units delivering hot air to various points in the structure. In order to take care of the small tools and the offices incident to the operation of the erecting



One of the Erecting Bays

carry one 50-ton and two 15-ton cranes. These bays are well supplied with electrically-operated pillar and jib cranes, there being a total of 35 of these units ranging in capacity from 1,000 lb. to 2,000 lb. These serve the various lathes and machine tools.

The erecting and machine shops are all one unit

and machine shop, a two-story office and tool room was erected in the center of the machine shop floor area. This unit is of steel frame construction with stucco curtain walls and steel sash.

The structure is served by a 110-ft. turntable located at the extreme east end of the layout and having 9 lead



One of the Machine Bays—Note Office and Tool Room Building at Left of Picture

structurally, the building being of steel construction with brick curtain walls and large areas of steel sash. The roof is of gypsum slab, poured in place and waterproofed with three-ply felt, asphaltum and slag. The floor has a 6-in. sub-base of cinders upon which there was placed

tracks to the east erecting bay, 2 of which are extended through to the west bay which is also reached by other tracks coming in from the west. In building the new unit a space 104 ft. wide was provided between the old erecting and machine shops and the new in which was





elevator. All bins, cases and cupboards are of steel, arranged in one tier in the basement and two on the main floor, the upper two floors being used temporarily for the offices of the mechanical and electrical engineers and the works manager. The entire structure is carried on reinforced concrete columns spaced 20 ft. center to center longitudinally and transversely. Crane runways and cranes have been installed to operate longitudinally



The Facilities Included a Large Storehouse of Modern Design

in each of the three bays of the main floor with provision for similar installations on the second floor when necessary.

#### New Welfare and Power House Buildings Necessary

Two welfare buildings were erected for the shop employees on the ground immediately adjoining the east side of the main shop building. These buildings are two-story structures, each 142 ft. by 41 ft. of structural steel and brick construction. The first floor is equipped with modern steel locker facilities, lavatories and toilets. The



One of the Welfare Buildings Adjoining the Erecting Shop

second floor has been provided with tables and benches and is used as a rest room and lunch room where the men may eat. It has been isolated from the first floor as far as that was possible.

In order to take care of the additional power necessitated by the erection of a new erecting and machine shop, a new boiler house was built with equipment consisting of two 500-h.p. boilers, mechanical stokers, feed water heaters and coal and ash conveying machinery. This unit is designed to carry 300 lb. pressure for testing locomotives as well as for providing heat and power. The entire shop layout has been completely inter-connected by a system of roadways built of plain and of reinforced concrete in widths varying from 8 ft. to 16 ft. and over

which electric trucks operated by storage battery are used for inter-shop transportation of parts and materials. Two outside pits have been built near the erecting shop where finishing touches may be given to repaired locomotives and the tenders connected. The old erecting and machine shop has been converted into a tank shop and what was originally the tank shop has now been turned into machine shop No. 2 where the heaviest machine tools are installed. The entire shop area has been thoroughly equipped with fire protection apparatus.

The new facilities at Juniata were designed by and erected under the supervision of the engineering department of the Pennsylvania, A. C. Shand, chief engineer, J. F. Murray, assistant chief engineer, H. R. Leonard, engineer of bridges and buildings, W. H. Cookman, architect with J. F. Cullen, engineer of construction, in direct charge of the work.

## Seaboards Florida Extensions Authorized

THE Interstate Commerce Commission has authorized the construction of 213 miles of railway in Florida by the Seaboard Air Line and affiliated companies. The work is estimated to cost a total of \$13,496,000. Authority has been granted to the Seaboard-All Florida Railway for the following lines:

	Miles	Estimated cost
East Coast		
West Coast		
West Palm Beach to Florida City...	100	\$8,500,000
Fort Ogden to Fort Myers.....	36	.....
Fort Myers to Estero River.....	14	.....
Fort Myers to Labelle.....	33	.....
Branch of Estero Line to Punta Rassa	11	4,090,000
Total.....	194	\$12,590,000

In addition the Naples, Seaboard & Gulf has been authorized to construct a line from a connection with the Seaboard's Fort Myers-Estero line to Naples, 19 miles, at a cost of \$906,000.

Authority has been granted to the Seaboard-All Florida to issue for cash, at par, \$2,500 of capital stock. The East & West Coast, the Florida Western & Northern and Seaboard-All Florida are permitted to issue \$25,000,000 of Seaboard-All Florida first-mortgage 6 per cent gold bonds, series A, to be sold at not less than 94½ and accrued interest, and the proceeds used for retirement of outstanding bonds, construction of new lines of railroad, and in reimbursement of expenditures for capital purposes. The Seaboard Air Line will assume obligation and liability, as guarantor, and otherwise, in respect of the \$25,000,000 of bonds.

The acquisition by the Seaboard-All Florida of control of railroads and other property of the East & West Coast and of the Florida Western & Northern by leases, has been approved.

Finally, the Seaboard Air Line is permitted to acquire control of lines of railroad to be constructed by the Seaboard-All Florida by lease and of the Seaboard-All Florida itself by purchase of capital stock; and of railroads and other property of the East & West Coast and of the Florida Western & Northern by transfer and assignment of leases.

The Naples, Seaboard & Gulf has made no submissions to the commission on its plans for financing the construction it plans and consequently no authorization has been made in this connection. The application of the Seaboard Air Line for authority to acquire control of the Charlotte Harbor & Northern by purchase of stock and by lease, which is before the commission and which relates to the company's general expansion program in Florida, has not

yet been acted upon. In issuing its certificate the commission said in part:

The Seaboard has been gaining strength rapidly during recent years. Those who are responsible for the conduct of its affairs believe it to be amply strong to carry the additional burdens which these new projects will cast upon it. Development in Florida has been unprecedented and increased railroad service is necessary as a part of this development. No one can see very far into the future and it is impossible to appraise at all accurately the future net earnings of the Seaboard and of the other railroads in that state. Certain risks remain inherent in all railway enterprises. Investors in the Seaboard may at some time suffer losses on account of these risks. On the other hand, development may be substantial and permanent. However, whatever the future may bring to investors it is reasonably certain that the facilities to be provided under the applications herein granted will permanently serve the people of Florida.

Commissioner Eastman, in a dissenting opinion, said, among other things, the following:

There is much to be said in favor of the conclusion which the majority have reached in this case, but I have been unable to bring myself to the conviction that it is right. The new lines in question are to be built in the southernmost part of Florida. They will open up little new territory and will serve few communities that are not already supplied with railroad facilities. The east coast line will parallel the rails of the Florida East Coast so closely as to be equivalent practically to a third track. The west coast line for the most part will be contiguous to existing rails of the Atlantic Coast Line or to the new line which is under construction by the latter's subsidiary, the Fort Myers Southern. The new lines are to be built at the pinnacle prices now prevailing in Florida. What this means will be appreciated from the fact that the estimated costs average about \$87,000 per mile of track without equipment, although the lines will be built in flat country presenting few engineering difficulties. The entire cost is to be met by an issue of bonds sold at a 6.77 per cent basis, thus further increasing the fixed charges of a railroad system which has for many years been regarded as overburdened in this respect.

If there is adequate reason for this duplication of railroad facilities at enormous expense, it exists in the very serious traffic congestion which for some time has prevailed in Florida. But this is a proposal, not to provide facilities where traffic is densest, but at the southernmost end of the state where it must be relatively light. The bottle necks which hinder the flow of traffic into and out of Florida are chiefly Jacksonville and other points north of Palm Beach. The extensive double tracking and enlargement of facilities at terminal points which is now nearing completion on the Florida East Coast will go far to relieve the situation, and if we were here considering construction designed for a similar end I should find little difficulty in approving it. But these new lines seem to be designed primarily for competitive purposes.

President S. Davies Warfield of the Seaboard has announced that construction on the new lines will not be undertaken until rights-of-way and station sites which have been promised or partly promised by interested communities and individuals are actually forthcoming.

## Rate Hearing at Denver Adjourned

**T**HE testimony of farmers, fruit growers, livestock operators and commission merchants, which showed the condition of farming in Colorado, was presented at the hearing before the Interstate Commerce Commission at Denver, Colo. on November 9-12, on the application of the western carriers for an increase in freight rates of five per cent. The American National Livestock Association, the Colorado Perishable Traffic Association, the Western Fruit Jobbers' Association of America, the Colorado Perishable Products Association, the Fruit Growers' Association of Colorado and the Colorado Co-operative Lettuce Growers' Association were represented.

The returns from crops this year will average slightly less than for last year, according to an estimate made by

R. T. Burdick, associate professor of economics and sociology at the Colorado Agricultural College. In 1924, farms on the average paid their owners 3.42 per cent on their investment. Onion growers in the same year lost an average of \$12.35 for each acre planted, while cabbage growers realized a profit of \$47.40 an acre. A small potato crop for 1925 was predicted as a large part of the crop has already been frozen.

F. E. Burton of the Burton Produce Company, Denver, Colo., testified that in 1924 freight rates on cabbage and other vegetables exceeded the amount paid growers by 70 per cent, while in 1913 freight rates were but 55 per cent of the amount paid growers.

Llewellyn A. Morehouse, agricultural economist associated with the Colorado Agricultural College, presented a series of tables compiled from a study of farms in Washington and Lincoln counties in eastern Colorado, which showed a decided depression in farming since 1920. He testified that people engaged in the cattle business are working under a loss and under adverse circumstances. Last year, they lost on an average, \$3,597 each. John C. Sowers, secretary of the Bureau of Business and Government Research of the University of Colorado, testified that 7 per cent of the taxes levied on farming and other agricultural properties in the communities covered by an investigation he had conducted in 1912 were delinquent. While in 1922, 20 per cent of the taxes levied were delinquent.

Colorado fruit and vegetable growers also testified before the commission. Among the witnesses were J. I. Wolfe, a produce and fruit dealer, J. F. Waddell, secretary of the Fruit Growers' Association of Colorado and D. C. Stone of the Colorado Perishable Products Association, who testified that their respective markets would not be able to compete with others under the proposed five per cent increase. Mr. Waddell testified that the freight rates on perishable products are borne by the producer and not by the consumer. These rates, he said, are relatively much higher than are paid by competitors in other western states. An increase in rates would result in a further curtailment of Colorado business. He also testified that the railroads do not use good judgment in their classifications of goods carried. He claimed that they should take into consideration the relative value of fruit and vegetables as compared with other products with due regard to the space they occupy in freight and refrigerator cars. He did not, however, suggest a practical plan for shifting the burden of freight rates from the producer.

G. W. Tegelar, Buena Vista, Colo., representing the Colorado Co-operative Lettuce Growers' Association, testified that the lettuce producers of central Colorado are securing only 10 cents per crate net profit on their lettuce, and an increase of five per cent in freight rates would result in reducing the net profits of the lettuce to only six cents per crate. Such a reduction, he said, would put most of the growers out of business. The total shipments of lettuce last year from Colorado through the Colorado Co-operative Lettuce Growers' Association totalled 90,000 crates.

According to Charles E. Collins, an operator of agricultural and livestock farms, the large increase in taxation in Colorado is the principal cause of the difficulties of the farmer and livestock grower. In Cheyenne county the delinquent tax list this year will be over \$100,000 as compared with \$4,000 before the war.

The hearing was adjourned on November 12 to reconvene at San Francisco, Cal., on November 16. Additional hearings will be held at Minneapolis, Minn., on November 30, Dallas, Tex., on December 7, and Kansas City, Mo., on January 4.



# How the Railroads Can Use the Motor Vehicle

*Automotive engineers hear views on possibilities for both freight and passenger traffic*

THE Society of Automotive Engineers held an "automotive transportation meeting" in Philadelphia on November 13 and 14 at which papers bearing on the problems of commercial highway transportation were presented. Several of these related specifically to the railroads' attitude toward this form of transportation and where and how they themselves may successfully engage in it.

Of these papers two tell the story of what individual railroads have done in this field; they are published herewith. The first deals with the Boston & Maine's activity as an operator of motor buses and was presented by H. F. Fritch, president of the Boston & Maine Transportation Company. The other covers the experience of the Pennsylvania in using trucks for the handling of l.c.l. freight and was presented by Joseph L. Scott, of

Scott Brothers, which firm handles this business for the railroad under contract.

One of the features of the program was the discussion on standardization. The automotive industry apparently feels the lack of this element in design of vehicles and is striving to overcome it. The lack of standardization in regulation between various communities and states and its entire absence in the case of interstate highway transportation were also discussed. Other subjects treated included the handling of containers and l.c.l. freight and motor coach operation.

At a banquet held by the society on November 14, Samuel M. Vauclain, president of the Baldwin Locomotive Works, delivered an address.

Abstracts of the papers by Messrs. Fritch and Scott follow:

## The Motor Bus and the Railroad

By H. F. Fritch

The history of transportation is one of continual change with the fitting of new agencies of transportation into their proper relations one to another. This will probably always continue to be the condition as new scientific discoveries are made opening up new possibilities for engineers to develop more perfect and efficient means of applying power to the movement of persons and goods.

### Necessity for Caution in Experiment

In the practical application of such developments there are two important tendencies brought into play; first, human reluctance to make changes and, second, the disposition once having taken up a new idea to carry it to an extreme. The ideal situation is to steer a course properly charted between these two extremes so as not to restrain progress, but on the other hand not to unwisely embark on ventures which will result in destruction and waste of capital. The tremendous capital invested in organized transportation agencies in modern times has made the utilities cautious about venturing into new untried methods of transportation.

Just because a development is new it is not necessarily sound. The cable car at one time appeared to have a future but its life, except for special application, was short. It was only a few years ago when we saw our cities overrun with the jitney, and many would have said it was a permanent institution in transportation. Its life, however, in most places was short and it has now almost ceased to exist. It was just one step in the development of the motorbus.

The American railroad has been a remarkable development from the 30,600 miles of line in 1860 to the present 260,000 miles. It is particularly an American institution, there being over one-third of the total mileage of the world in this country.

The railroad plays an important part in the economic history of the country, even to the extent that too rapid railroad expansion embarrassed the business structure of the country in 1873, and in more recent years absence at times of facilities to cope with heavy demands have been harmful. Present good service and facilities are doing their part toward the general prosperity.

The investment in railroads is about \$18,900,000,000, which is only slightly less than the investment in all manufacturing industries in the country. The passenger revenue in 1924 was \$1,076,000,000, and the number of passengers carried 931,348,000.

### The Decrease in Railroad Passenger Traffic

The automobile has become an important factor in the affairs of the railroad as it has in the affairs of practically all individuals and organizations. The volume of passenger traffic on railroads as a whole shows a decrease in recent years which I believe can largely be attributed to the competition of the private automobile. In 1920, the peak year and a very active industrial year, the total number of passengers carried was 1,769,913,000, while in 1924 the number was 931,348,000, a decrease of 27 per cent.

Between 1923 and 1924 there was a decrease of 5.5 per cent. These decreases are not entirely due to the individual car, but to some extent to the motorbus, although up to the last year or two the inroads made by the latter were relatively unimportant.

### Unit Rail Cars for Off-Peak Commutation Service

The private automobile has had the most serious effect on steam road passenger earnings in the pleasure riding class. Such business was ordinarily handled on the railroad at full fare or at slightly reduced excursion rates, which makes the loss serious. In this particular field

it will be very difficult for the railroad to recover any large part of the business.

In the commuting district the private automobile has taken a certain part of the steam road's revenue, but as the railroads increase off-peak service through the use of unit rail cars, and as city congestion increases it seems likely that at least a certain part of this will revert to the steam roads.

One of the places where the steam road has been hardest hit is in the sparsely settled territory where train service at the best has been infrequent, and with depleted revenue has become still less frequent. Coincident with this the public has become educated to the convenience of the automobile. Particularly have they become obsessed with the idea that there must be a conveyance at their disposal at the particular time they desire to travel. In other words, the idea of personal service in transportation has become important and the necessary waits for larger transportation units have become more of an irritation than formerly. The result is that as the automobile has depleted rail earnings, resulting in a decrease in service, this decrease in service has further influenced additional travelers to use the automobile, further curtailing rail revenue.

The railroads must study the effect of the automobile upon the public attitude toward transportation with great thoroughness in order to determine what changes they must make in their methods of doing business in order to make their service of the greatest possible benefit to the public and retain within their control all revenue which can be so retained economically.

#### Motor Car Leads Public to Demand Luxury

The use of the automobile has made it possible for one to go and come more as suits one's individual convenience than is possible when confined to train schedules. The automobile affords quicker transportation over the shorter distances where the rail lines may not be direct or the terminals not conveniently located. Automotive engineers have developed the product of their industry with a view to promoting a sense of personal luxury in travel, and there is, of course, the element of privacy when traveling by automobile. Our modern surfaced highways and the gasoline engine without smoke or cinders make clean travel possible at all seasons of the year. The 15,500,000 passenger automobiles in service are educating the public to expect these characteristics in transportation. On the other hand, the extent to which the automobile is being used clearly demonstrates that the public is willing to pay for the kind of service it wants. The great bulk of passenger miles by automobile certainly costs more than it would have by train.

Another effect of the private automobile is that railroad stations are rendered more accessible, which makes it possible to reduce the number of stopping places for long distance trains. This increases the speed with which long distance trips can be made and provides a more comfortable trip for the long distance traveler by lessening the annoyance of stops.

The railroads can profit much by studying these features of automobile travel and meeting them insofar as possible by improvements in rail service and by providing a co-ordinated highway service.

#### The Branch Line Problem

The particularly acute situation insofar as some railroads are concerned is that the branch line revenues have been so depleted by the private automobile and the truck that the main lines can no longer support them, and means must be found to furnish transportation along the branch lines in a more economical way. The Boston

& Maine believes that this can be done effectively and economically by using the motor bus and motor truck. The substitution of motor service in such instances for rail service rather than the complete abandonment of all service with no substitution will be to the advantage of the railroad in that it will make possible the continuance of the industrial and social activity of the community served by the branch lines, and we believe, probably increase their activity. This means that these communities will not be lost as feeders to the main lines but will become even more valuable in that respect than in the past. The matter of branch lines is by no means trivial for many railroads. In the case of the Boston & Maine 1,024 miles of its line, or 42 per cent of the total, produces only 2.8 per cent of the total freight revenue. This is truly not a condition which would be allowed to continue in any private industrial enterprise.

In facing the branch line problem it must be recognized that times have changed since these roads were built. Many of them were constructed for competitive purposes which reason for existence has long since disappeared as the result of consolidations. Many of them have been unprofitable from the day they were built and are even more so today with their earnings depleted. The advent of the motor vehicle has made possible service to these sparsely settled communities in a more economical form. The railroad cannot ignore this situation and will do well to recognize it and avail itself of this agency now at its disposal.

#### The Future of the Railroad

As I see the future of the railroad, it is to operate a main line rail service with properly organized motor vehicle service as an auxiliary acting as a feeder into the territory where rail service can no longer be justified. This motor vehicle service will include both the truck and the motor bus. My discussion here will be confined to the use of the motor bus.

#### The Public's Interest in

#### Economically Justifiable Service

I believe the railroads owe it to the public which they serve to use the motorbus in conjunction with or in substitution for train service wherever sound economics justify it. The determination of the proper field of activity is not as simple as it sounds, and unless good judgment is used extravagant operations are likely to result on the one hand or ruinous competition on the other. There is a great tendency to inaugurate competing motor bus service in such a way as to take away from the rail line a substantial portion of the full fare passengers, leaving for the rail carrier the low rate commuter travel. This makes possible only a very slight reduction in operating expense for the rail carrier, not at all in proportion to the reduction in its gross earnings. The result is that transportation for the communities concerned is being provided in a very inefficient manner. In the long run the traveling public will pay for such inefficiency. Without close analysis it is frequently impossible for the general public to see what an effect such an uneconomic arrangement will have upon them. The fact is, however, that it is important for any territory to have a financially strong railroad serving them, both with passenger and freight service. Any condition which tends to weaken the railroad reacts in the long run through higher rates and poorer service.

#### The B. & M. Transportation Company

Feeling that it should make every proper use of the motor vehicle, the Boston & Maine has organized an automotive auxiliary known as the Boston and Maine



Transportation Company, a Massachusetts corporation. This company is carrying on certain motor truck activities in the nature of store door delivery and road haul, which, however, will not be discussed here.

With respect to the use of the motor bus, it is the intention to use it to replace train service where it can perform the service more economically, as a supplement to rail service between trains, as a feeder to rail lines from new territory, as a feeder along main lines serving local stops, and as a touring service to care for pleasure travel which desires to go over the highways.

The first motor installation was in the fall of 1923 before the organization of the Transportation Company. A short branch line had been furnished with steam passenger service at a loss for a long time. This steam service was replaced by unit gas rail car service which reduced the loss materially but which was still carried on at a substantial loss. Later the unit car was replaced by a motor bus on the highway and the frequency of service materially increased. This service is still performed at some loss because of the scanty patronage available, but of much less magnitude than heretofore.

Since last May the Transportation Company has inaugurated a number of services to try out the application of the above-mentioned theories. Various installations will be mentioned, not for the purpose of describing particular localities and conditions in detail, but more for the purpose of calling attention to the essential features of the various types of operation and in so far as possible, in view of the short period of operation, to give some idea of the results.

There is a twelve mile steam railroad line from Portsmouth, N. H., to York Beach, Me., on which in the winter two steam trains were operated in each direction and in the summer four trains. This operation has been unprofitable and at the beginning of the past summer season bus service was substituted with twelve trips in place of the four steam trips, and more recently on the fall schedule four trips in place of the customary two steam trips. Not only did this route replace the steam service, but an extension of twelve miles was made along the shore with a tie-in on the other end with main line railroad service. This extension of service was in a territory not heretofore served by the steam road.

This service was very satisfactory to the community and produced a revenue much in excess of that from the former steam service. During the summer season the revenue was substantially in excess of the cost of the service. Whether or not this condition will apply on a full annual basis is yet to be determined by experience.

A bus installation was made on an inter-state run of 110 miles between Boston and Portland. This operation, in direct competition with the company's own steam train service, was established largely because there was competition also by three other bus lines. The railroad company's bus lines charged substantially the same as the railroad fare, while the others operated on a cut rate after the railroad bus line appeared. The secondary purpose of this operation was to get first hand information as to the desires of the traveling public and the effect of the bus on railroad travel. A large number of passengers have been carried, at times as many as four buses being required on one trip.

#### **Bus Takes Railroad Traffic—Does**

##### **Not Build Much New Business**

In order to get accurate information as to the reasons for passengers using such service, for a period the travelers were asked to fill out questionnaires. Replies showed that 87 per cent were traveling on pleasure and that 77 per cent of the total would have traveled by train if

the bus service had not been available. This is truly an astonishing condition in view of the common claim that such service promotes a large volume of new business.

#### **Necessity for Regulation of Interstate Buses**

At the present time there is an entire absence of law regulating such interstate operations. It is of vital importance that suitable law be enacted by Congress so that such operations may be limited to those which designated regulatory bodies shall find are required for public convenience and necessity.

#### **Supplementary to Train Service**

Another operation is that in which buses have been used to amplify a steam train schedule. The Boston & Maine serves a wonderful summer resort territory with beaches, lakes and mountains in Massachusetts, Maine, New Hampshire and Vermont. Not so many years ago these places were reached only by train service, but with the advent of the automobile and improved roads the railroad traffic has suffered and it has been necessary to curtail the service. Such a curtailment, however, has a tendency to drive others to the use of the automobile and to detract from the popularity of the resort, both of which are to the disadvantage of the railroad. In order to meet this situation upon two lines in New Hampshire, one 29 miles in length and the other 42 miles, two bus trips in each direction were put on during the summer season in addition to the two steam trains. The bus trips made main line train connections in part formerly made by train trips. In addition they made available some train connections which have not been provided at all in recent years. This service met with much approval, but during the short period of operation this past summer was not entirely self-supporting. It seems probable that in another summer period with more advance information to the public financial results may be more satisfactory.

#### **Supervision and Maintenance**

The supervision and maintenance of these operations is by an organization entirely separate from the railroad operating organization except that on some of the isolated routes railroad trainmasters and agents supervise the operation. However, as far as the public is concerned, every effort has been made to adjust the bus service to function in harmony with the train service. Bus schedules are given a place in the general time table of the railroad and advertised generously about the railroad stations. Reservations for long distance bus routes are being handled in the railroad travel bureau. During the summer the Boston-Portland bus route was given the feature place in the railroad time table. At the same time some marked improvements have been made in train service on this route by adding new trains and reducing dunning time, which have also proved popular.

At the height of the summer season there were eight distinct services in operation covering 445 miles of route. For this service a fleet of thirty buses was used of two distinct types, eighteen of the so-called street car type, and twelve of the parlor car type. In selecting the bus to be used the desirability of taking as nearly as possible a standard product was constantly in mind, believing that standardization is important if the production of motor buses is to be put upon an efficient basis.

#### **Types of Buses Used**

For the street car type of bus one of the standard four-cylinder chassis was used for eleven of the fourteen and a standard light six-cylinder chassis for three others. The bodies on these two chassis are practically identical

except for length. The seating capacity of the body mounted on the light weight chassis is 21. The seating capacity on the four-cylinder chassis is 25 in the case of four buses and 29 in the case of ten. The general appearance and dimensions, except for length, are identical and the general type of construction is substantially the manufacturer's standard. These units are used in places where the average ride is relatively short and the interchange of passengers somewhat frequent.

In certain instances these buses are required to carry baggage, and part of the units have a door 32 in. wide on each side at the rear and the rear bank of seats is replaced by five seats which may be tipped up against the back when not in use, affording a clear space for baggage. The floor is neatly bound with iron and the windows protected by bars, so that it is perfectly practical to carry trunks.

In selecting this equipment the characteristics of the service in which they were to be used were constantly in mind and the various dimensions of the unit were made consistent with these uses. The seats selected are substantially more comfortable than those provided ordinarily in the street car type of motor bus because of the feeling that a soft seat with adequate springs is desirable, at least in all but the very shortest of city runs. The seat spacing is arranged to give adequate knee room and the width is generous. Aisle width is somewhat less than would probably be desirable in buses for strictly city service, but it is sufficient to allow passengers to move in and out without unreasonable crowding.

#### Importance of Appearance

The inside finish of these units has been given a great deal of attention in order to make them attractive. In doing this no attempt has been made to equip them with unnecessary frills, but plain finish of good quality has been the practice with the feeling that in the long run such construction has the most appeal to the public.

For the exterior finish colors were selected which would be striking and attractive, not flashy, and at the same time practical from a maintenance point of view. The main body color is a medium green with a cream belt rail. The roof is a light green. This color combination has the additional advantage of being quite visible at night.

#### The Long Distance Car

For the long distance work a standard chassis with six cylinder engine was selected. A standard body made

by the same manufacturer was also taken. This unit is distinctly of the parlor car type with low head room, recognizing that no standing passengers would be carried. This body is ordinarily equipped for 25 or 29 passengers, depending upon whether or not inside baggage space is provided, but for this operation the seating capacity was cut down to 20 in order to provide the greatest practical seat comfort for every passenger. Instead of using the conventional arrangement of two seats on each side of the aisle two seats were placed on one side and one on the other. With this arrangement a double seat has a width of 38½ in. inside the arms, and the single seat 19 in. The seats are so arranged as to have no seat over the wheel house, the aim being to have every seat a comfortable one. Some baggage space is provided inside, but most of it is carried on the roof.

As in the case of the street car type, the inside finish was selected with the idea of having a plain, rich, and durable finish rather than a highly decorated finish which would have too great a tendency to become shabby. Experience has shown that this policy was justified. Experience has also shown that the most satisfactory baggage space is inside the bus body rather than on the roof of it.

The outside finish of these buses is somewhat more decorative than the street car type which is in keeping with their character. Below the belt rail they are finished in a light green, and from the belt rail to the roof in cream. Our experience has shown that attractive outward appearance is of great value in attracting interest and business.

#### "Railroads Will Make Large Use of the Motor Bus"

To summarize:—The railroads in order to strengthen themselves and increase their ability to provide good main line service at the lowest possible cost must make use of the motor vehicle to supplant and replace rail service where the motor can perform the service more economically. Such a policy is to the advantage of both the community served and the railroad. The railroad as well as other bus operators should work conscientiously with the bus manufacturers to promote standardization of construction to their mutual benefit. Any improvements of the motor bus along the line of economy of maintenance and operation will assist the railroads in serving those of their communities which it is becoming increasingly difficult to serve by rail on account of their light traffic. I predict that the railroads will make large use of the motor bus.

## Freight Handling With Trucks

By Joseph L. Scott

In September, 1923, the Pennsylvania Railroad selected Scott Brothers, who have been engaged in the general hauling business since 1868, to demonstrate the handling of l.c.l. freight by motor truck between Overbrook, Pa., and Downingtown on their main line. Two units were placed in service on this experimental operation, with truck masters and helpers. In selecting this division for the operation, the railroad chose a territory with continuously heavy traffic and extremely complicated conditions for the handling of l.c.l. freight; and one of the busiest stretches of railroad in the country. Incidentally, there were more officers watching this operation than in any other section of the country. Our trucks operated over a route 32 miles long, served 27 towns and 28 stations.

After this operation proved successful for a period of three months, the company realized the possibilities of the motor unit in connection with their l.c.l. freight handling, and installed additional units on the Maryland, Trenton, New York and Atlantic divisions. Of these, the Trenton division is now entirely motorized for the handling of l.c.l. freight.

#### 1,348 Miles Per Day

Our trucks now give an uninterrupted daily service to 469 towns in the states of Maryland, Pennsylvania, New Jersey and Delaware, and cover 1,348 railroad miles daily. In a number of cases this has expedited delivery from 24 to 48 hours.

At the time this service was inaugurated, we faced



the problem of organization, which in our particular case was not a very difficult one as our company had been in continual existence over 50 years, engaged in general contract hauling. Therefore, we were able to go into our organization and pick high class men who had had several years' experience in the transportation of almost all kinds of commodities. This permitted us to render the class of service demanded by the railroad.

#### Careful Handling of Freight

The men that we selected to pioneer this operation had as much interest in the success of the undertaking as the railroad officers and Scott Brothers. On one occasion one of the truck masters dropped a roll of roofing paper which the truck passed over and damaged. He immediately made a purchase of a like roll at his own expense, in order to avoid a claim. This will give you an idea of the class of men engaged in this operation, and this is only one of the many similar cases we have known. When you stop to consider that these truck masters and their helpers travel from 50 to 125 miles per day and handle 20,000 to 60,000 lb. of freight divided into from 1 to 600 individual packages, and handle them in such a way as to reduce the claims for loss and damage to a minimum, you can readily see that this operation means a substantial saving to the railroad company.

#### Ton-Mile Cost, 3 to 10 Cents

Our cost per ton mile, due to the different territories that we cover, varies from 3 to 10 cents. It is our judgment that an economic haul for a motor truck is approximately from 50 to 75 miles daily, and this decision is arrived at by observation of our general trucking operations.

#### Irresponsible Truck Operators

There seems to be a difference of opinion relative to the co-operation between the motor truck and the railroad systems, but in our judgment, the co-ordination of the railroad system with the motor truck will establish economic transportation. The objection to this plan is supported by the irresponsible operator who purchases motor truck equipment with practically no investment, and enters into direct competition with the railroads in long distance hauling, making it unprofitable for both carriers, that is, the railroads and the motor truck. This condition is primarily brought about by the motor truck manufacturers merchandising their equipment on a basis of practically no cash down payment regardless of the purchaser's responsibility, thereby establishing irresponsible competition. We have found that in many cases these operators have no organization, no financial standing, and do not carry insurance to protect the shipping public. Further, that they operate illegally by overloading, and do not come under any federal regulation. This permits them to carry merchandise in any manner or at such rates as they may see fit.

This places the railroad systems and the responsible truck operators at a great disadvantage and develops unfair competition.

It is due to the contractual relations existing between the Pennsylvania and Scott Brothers that we have been able to serve 469 towns daily without an infringement of the law.

#### Necessity for Regulation

From general observation, we have concluded that we are now in a position to predict co-ordination between the motor vehicle and the railroads, that all motor operations shall come under state or federal regulations, and that no one shall be allowed to operate a motor vehicle

in a common carrier service without proper financial standing, and without carrying such insurance as may be prescribed by law to protect the shipping public. Furthermore, the motor truck manufacturers should supervise the merchandising of this equipment and see that it is placed in the hands of competent and capable operators. If these points, as outlined above, are followed, there will be a considerable reduction in the number of trucks that congest our highways while carrying only one-third of a load.

In this manner, the elimination of the irresponsible operators and unfair competitors to the responsible carriers will be effected.

## Preliminary Report on C. M. & St. P. Train Control

WASHINGTON, D. C.

**E.** H. DEGROOT, JR., director of the Bureau of Signals and Train Control Devices, of the Interstate Commerce Commission, has directed a letter to B. B. Greer, chief operating officer of the Chicago, Milwaukee & St. Paul, regarding the preliminary inspection of the installation of the Union Switch & Signal Company's continuous inductive two element automatic train stop system on the 24 miles of double track between Bridge Switch, Minn., and Winona, Minn., on the C. M. & St. P. As a result of this inspection, the following criticisms and comments are offered:

1. It is suggested that the cut-in feature at the beginning of train control territory in this installation be carefully considered with a view to possibly securing increased protection in case the locomotive device should become defective while in non-equipped territory, and that this protection might be of such character as to result in a penalty brake application should the device for any reason fail to cut-in automatically.

- It is further suggested that some means be provided for checking the integrity of the locomotive circuits when the locomotive is operating in non-equipped territory.

2. No interference from foreign current influence was reported and none observed during the inspection, nor was there any evidence of foreign current having been existent at any time. However, the trouble which might result from the presence of stray current could be so serious that it is deemed proper to say here that, should it later develop, effective means will have to be provided for promptly overcoming the trouble.

3. Great care should be exercised in the assembling and installation of the automatic train stop device. It was noted that the service exhaust choke had been omitted from the engineman's brake valve on locomotive No. 5623, causing a more rapid reduction of brake pipe pressure during various tests than was had with locomotives having orifice of the proper size.

4. All equipped locomotives should be properly tuned and in good working order before leaving the terminals at LaCrosse and Minneapolis. It was noted during the inspection that there was room for improvement in this respect.

5. It was noted that the apparatus of the modified equipment has been so constructed as to prevent release of the brakes after an automatic application, until the train has been brought to a stop, and it is understood that this modified equipment is to replace that of the older type on all locomotives.

6. Careful investigation should be made to ascertain, beyond doubt, the cause of undesirable operations such as that of locomotive 6320 on September 11 and 14, 1925, and to remove this cause.

7. In the modified equipment the placing of the automatic train stop valve group in the engine cab where it will not be affected by cold should increase the reliability of the device. It is understood that this modified equipment will replace that of the older type.

8. The failure of the automatic train stop device on locomotive 5623 to initiate a brake application with main reservoir pressure below 65 lb., on September 10, 1925, emphasizes the necessity for preventing undue frictional resistance in the valve affected.

This letter says Mr. DeGroot, is not to be taken or construed as an act of the commission.

## Ten Killed at Monmouth Junction

**T**HE disastrous collision of passenger trains near Monmouth Junction, N. J., on the Pennsylvania Railroad, on Thursday, November 12, at 6.10 a. m., briefly reported in the *Railway Age* of November 14, resulted in the death of nine passengers (including one employee of the road, riding in the rear sleeping car) and one Pullman porter, and the injury of 30 passengers.

In this collision, eastbound passenger train No. 6, the Mercantile Express, moving at about 50 or 60 miles an hour in a dense fog, ran past cautionary and stop signals set against it and, at a point about 1900 ft. beyond the stop signal, collided with the preceding train, No. 166, an express train from Washington, moving at about 10 miles an hour (having been stopped by the last signal). The two rear cars of No. 166, steel sleeping cars, which had been attached to the train at Baltimore, were badly crushed, and all of the persons killed were in the last one of these two cars.

The tracks on this section of the road are straight for

seeing signal 44.0, he at once shouted to the engineman. A fusee, thrown from train No. 166 was burning at a point some distance east of signal 44.0.

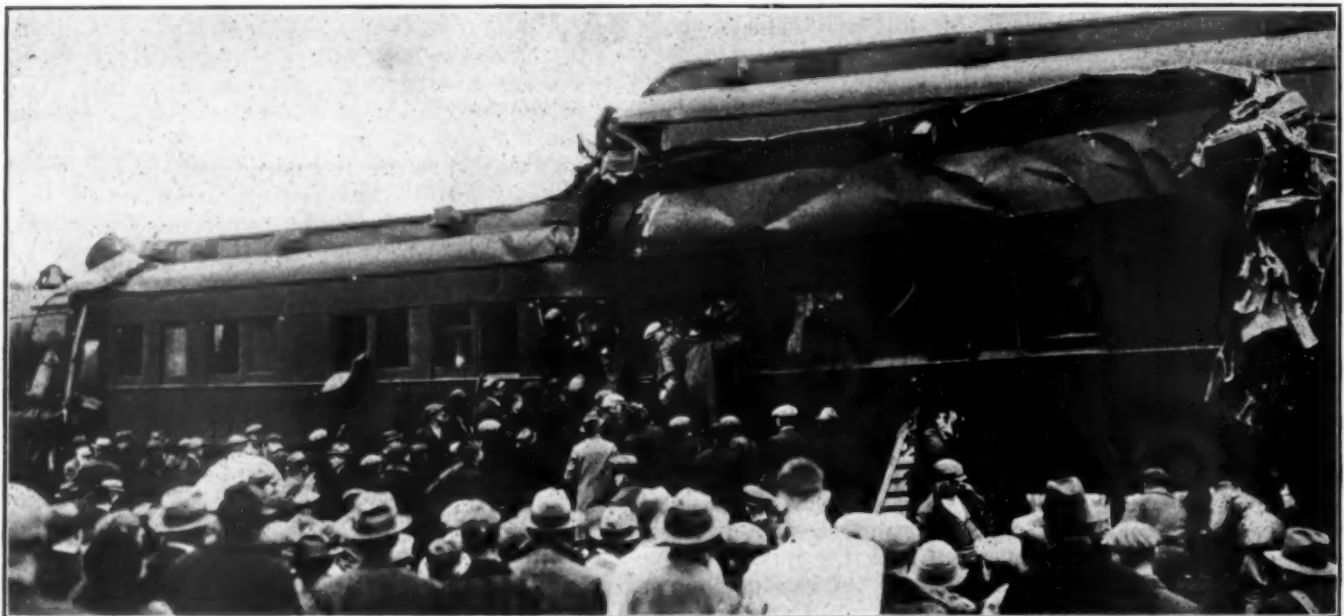
The track was blocked all day, and one of the injured (who afterward died) was not extricated for many hours. By using one of the westbound tracks for eastbound movements between Princeton Junction and Monmouth Junction, six miles, a two-track line was kept open for passenger trains.

The collision occurred just at dawn when the lights (red, yellow, and green) were visible farther than the signal arms.

Engineman Carroll was arrested on Friday, on a charge of manslaughter, and was held over night, but on Saturday was released under \$10,000 bail, to appear later before the Grand Jury.

Joseph F. Autenreith, chairman of the New Jersey State Board of Public Utility Commissioners, in summing up the investigation made by his Board said:

"The railroad right-of-way and equipment were found upon investigation to be in good condition. The signals



International

Collision Near Monmouth Junction, New Jersey, November 12, 1925

several miles both ways and the grade is level. The signals, automatic, three-position semaphores, are on bridges above the tracks. The line is four-track and the trains were on the outer eastbound track. The signals, for many miles, are about one mile apart—usually less—and those involved in this case were No. 44.8 (caution) and No. 44.0 (stop). Signal 45.8, the next in the rear or 44.8, was clear. For 12 miles (from Trenton) the length of each block section is one mile or less.

The engineman at fault, Thomas G. Carroll, is a man 60 years old, experienced on this line, with a good record. His statement is to the effect that signal 44.8, which was at caution (yellow) was missed by him; but at the next signal, No. 44.0, the fireman shouted "red" and Carroll also apparently saw it; both when they were very near to it. Carroll then applied the brakes in emergency; but, as appeared from the condition of the wreck, he cannot have set the brakes promptly. There is no question as to the efficiency of the brake apparatus.

Fireman Armstrong said that he did not see signal 44.8 because, at that time, he was putting in a fire; and that,

were properly operating. Noting the position of the stop signal as he passed under it the engineer claims he immediately applied brakes in emergency.

"He admits that he was a short distance past the signal before the emergency application was made. The distance from the stop signal to the point of the accident was sufficient to stop Train No. 6, if the emergency brakes actually had been applied at the signal location, but it is evident that the emergency brake was not applied until the distance had become so short that it was impossible to stop before the collision occurred."

INDUSTRIES LOCATED along the line of the Pennsylvania now number 8,000, according to a new directory just prepared by the road. This directory is alphabetically classified according to the articles manufactured, shipped, received or consumed by the shops, factories and business establishments listed, and also alphabetically under each location. The directory also describes the warehouse facilities provided by or affiliated with the railroad in the larger centers.



# Denver & Rio Grande Western Cuts Material Handling Costs

*Pay rolls reflect changes in methods and improvements in facilities—Shop production facilitated*

A 30 per cent reduction in material handling costs, a 60 per cent reduction in scrap handling costs and improved service in a number of particulars are among the results which have followed in the wake of changes made during the last two or three years in the



The New Store House at Salt Lake City Is Conspicuously Neat and Orderly

supply methods and facilities of the Denver & Rio Grande Western. These changes were of two classes: those brought about when this road undertook the building of new facilities for the repair of locomotives and cars, or as a result of efforts subsequently made to meet the new conditions imposed by these shop rehabilitation activities



Making a Delivery by Tractor and Trailers

and such independent changes as were made in accordance with current developments in storekeeping. In view of the unusual conditions with which this road has had or with which it still has to contend—among which are the handicaps to operation presented by the extremely mountainous characteristics of its location, the large mileage of

narrow gage line, its remoteness from material markets, and the financial vicissitudes through which it has passed—the changes that have been effected merit attention.

Reference has already been made in these columns to a new storehouse that was built at Salt Lake City, Utah, in connection with terminal developments at that point and also to the construction or rearrangement of shops in that city and in Denver, which were calculated to insure greater efficiency in the handling of material.\* Prominently associated with these improvements are the changes which have been made in the main storehouse.

## Store Remodeling Provides More Shelf Space

Prior to 1923, the main store of this road was situated at Burnham, near Denver, where the principal shops are



The Telephone Switch Board in the Denver Storehouse, Where All Orders for Material Are Received

located. This building was an old, pitched-roof structure of red brick with a basement. It was about 50 ft. wide and 200 ft. long. The major part of the first floor and all of the basement was utilized for the storage of stock. This building is still the main storehouse of the road, but the structure has been re-equipped throughout with new shelving built in units which extend out from the walls of the store in such a way as to leave a wide aisle down the center of the building and narrower, though commodious, aiseways between units. In conformity with the plan followed in equipping the new storehouse at Salt Lake City, the partitionless feature of this shelving has been carried to the point where the partitions are not only omitted at the back of all pockets but also at the ends, with the effect of facilitating the diffusion of light. Where the nature of the material requires, unit platforms or specially built racks take the place of shelves. With all the stock neatly

\*For a description of the storehouse and these features, see *Railway Age*, May 17, 1924, page 1193, and September 27, 1924, page 543.

stored according to the tray system and all woodwork including the exposed ends of the metal trays and the underside of the shelves painted white, the interior of this store affords an example of order and cleanliness that compares favorably with even the interior of the new storehouse at Salt Lake City, which is one of the best appointed storehouses in the west. When the work was completed in September, 1924 (at a cost of approximately \$3,000), the capacity of the Burnham store had been increased by 3,000 sq. ft. of much needed shelf space.

#### Telephones Expedite Store's Delivery

When the new shops were built at Denver—one for locomotive repairs, one for wood cars and one for steel cars—the problem of getting material from stock to the working benches called for stores delivery and the “red cap” with his tractor truck and trailers and hand cart. “Red caps” also began to function at the other shop points about this time. At Denver, however, the system has since been modified by the use of telephones. This system which is a departure from the “pick up” system comprises a central switch board installed near the shipping counter in the main storehouse and 22 telephones. There are eight section stock-keepers at Denver. Of these, five are stationed in the general store where each stock-keeper has jurisdiction over a special division of material. A sixth is stationed in the locomotive castings yard, a seventh in the car castings yard and the eighth in the lumber yard. Each of these stock-keepers has a telephone connection with the switchboard. There are also connections with the general office, while the remaining



The Basement of the Salt Lake Store House

phones are distributed throughout the shop area. When material is wanted the order is transmitted over the telephone where it is received by the switchboard operator or “plugged through” to the proper stock-keeper.

The switchboard operator, is an experienced stockman and holds his position there by reason of his ability to answer inquiries and make suggestions over the phone to persons authorized to order material, as well as to issue proper orders on the shipping clerk, who fills the requisitions and directs the movements of the red caps.

Stores delivery has paid well on the Denver & Rio Grande Western. Where the average cost of getting material from the store before the days of stores delivery was 14 cents per ticket, on the basis of 15 min. lost time

to the mechanic or helper, the cost with red caps averages 5.2 cents per ticket, which represents a saving of approximately \$1,000 a month at Denver, over and above the closer check of stock afforded, the more accurate placing of credits and the saving from eliminating the manual delivery of material to the passenger station for baggage shipments. As compared with the straight “pick up” system, which has been maintained at some of the shop points for the purpose of the experiment, stores delivery with the telephone has proved superior. At Denver, where the installation cost \$2,000, it has permitted a reduction in the number of red caps from three to two



The Scrap Dock at Pueblo, Where Scrap Is Handled for 85 Cents Per Ton

and of counter men from two to one, but its principal advantage has been in making the stores delivery system more efficient, by affording a better contact between the store and the mechanic needing material. Thus while on the average a 15 min. service is provided, with no delivery requiring more than 30 min., as where lumber must be secured, the telephone enables the store to learn of extraordinary conditions in time to make immediate delivery by special messenger, if necessary, as well as to forestall instances where the inability to fill a requisition delays the delivery of the material needed until the mechanic learns of the trouble through the red cap on his scheduled round and revises his slip accordingly. The significance of this is more easily appreciated when it is considered that the supplies at Denver are not all carried in the general storehouse or even close to it, but are concentrated at different points in the yard.

#### No Lost Motion with Shop Material

Next in importance to the introduction of the telephone in the machinery of stock distribution at Denver, is the arrangement and operation of the yard where the tires, sheets, castings and other material required by the locomotive and blacksmith shop are carried. In building the new terminal facilities at Salt Lake City, the new storehouse was located opposite the locomotive shop so that a travelling crane in the intermediate area could be utilized by the store as well as by the shop. Such an arrangement was impossible at Denver with the old machine shop occupying the area between the storehouse and the new shop craneway.

Under these conditions, it was originally planned to carry much of the store material on the far side of the new shop near the lumber yard.



Under the present arrangement, however, the entire area between the new locomotive shop and the old locomotive shop (now the blacksmith shop), comprising a strip of ground about 30 ft. wide and 300 ft. long, together with the travelling crane above it and an additional space at the rear end of the blacksmith shop, is included within the stores department's jurisdiction and is devoted exclusively to the storage and handling of stores material. In return for this added jurisdiction the stores department has assumed the responsibility of meeting every requirement of the locomotive shop and blacksmith shop for the delivery of material from this area. The method by

center of the craneway for the operation of tractor trucks, etc. So well arranged and equipped is this yard, that all operations in the area, including deliveries to the shops, are performed by a force of three men—the section stock-keeper, the crane operator and a helper. Where deliveries are made beyond the reach of the crane they are handled by one of the two tractor truck operators which are included in the stores delivery organization.

As a result of these methods the cost of handling materials by the stores decreased from 7.7 cents per \$1,000 of stock in July, 1924, to 5.3 cents in July, 1925, these costs being computed on the basis of issues of all stock and the entire store and purchasing department payroll, with the exception only of the scrap handling account.

#### Cranes Dispense with 20 Scrap Sorters

Prior to 1924, the scrap of the Denver & Rio Grande Western was collected at three yards, Pueblo, Salt Lake City and Denver. With practically no magnet service, the work was almost entirely manual. The result was that scrap handling activities, including the unloading of scrap, its sorting according to specifications and its re-loading for shipment to market, required an average of 50 men and cost about \$2.10 a ton. At present scrap handling is concentrated at two yards, all scrap east of the Continental Divide going to Pueblo and all scrap west of



The Denver Store House Was Remodeled

which this is done is highly efficient. The general arrangement is one of carrying all stock and locomotive parts immediately adjacent to the point of use wherever this is possible, the effect of which is to reduce delivery movement to a minimum. Thus all small iron is carried in racks which extend out from the face of the wall of the locomotive shop immediately opposite the shears where the bulk of this material is to be delivered. Delivery is made simply by thrusting the iron through a cased opening in the wall adjacent to each rack. Similarly, refined iron is carried in racks opposite the lathes which use it, while leaf springs are so stored that those springs waiting repair can pass directly to the proper forge without haulage and the repaired springs directly to the spring rack, but a few feet away. Boiler plate, owing to its size, is stored on edge near the point of unloading but in a place and in such a manner that the desired size of plate can be picked up without interference from other materials and carried directly to the boiler shop, while all scrap brass can be loaded directly into the foundry.

Except for the smaller miscellaneous castings, which are carried on a ground platform behind the blacksmith shop, all material lies in the path of the travelling crane which is used to unload all incoming material as well as to handle the material after storage. The racks for the bar iron, springs, and similar material susceptible of storage in racks, consist of tiers of horizontal brackets made of rail. These sections of rail are supported at the center by a row of wooden uprights but are free at the ends so that the material can be placed directly on the brackets from the side without having to insert it piece by piece from the end of the rack. Each rack is surmounted by a canopy roof large enough to provide protection from the weather but small enough so that the travelling crane can lower material between the several racks, and the racks are arranged so that they leave a wide aisle down the



A Portion of the Locomotive Castings Stored at Denver, Where All Material Is Arranged to Avoid Lost Motion

the divide going to Salt Lake where the bulk of this scrap originates. These yards comprise merely strips of ground bounded by two tracks laid about 40 ft. apart. Each yard is equipped with a locomotive crane and magnet. By operating these yards under an arrangement whereby the crane remains on one track and loads and unloads the cars on the other track along with the assistance it gives in all sorting work in the intermediate area, scrap handling is now carried on with but 20 men and at an average cost of only 85 cents a ton or at a saving of \$1.25 per ton over the previous year, the costs in both cases being computed by including the entire cost of labor, crane operation and superintendence for unloading, sorting and loading. With a production of 37,000 tons of scrap last year, the total saving in this branch of the stores activity was approximately \$45,000.

Including the scrap handling activities with other material handling work on the D. & R. G. W., only 140 men were actually engaged in the handling of materials in

July, 1925, as compared with a force of 235 men in July, 1924, while the total man-hours fell from 50,816 in July, 1924, to 30,325 in July, 1925, a reduction of about 40 per cent. These reductions have resulted not alone from the changes described above in the supply service account but also from the reduction in the stock on hand from \$2,600,000 in July, 1924, to \$2,181,000 in the same month of this year.

## P. R. R. Helps Trainmen Present Neat Appearance

By E. T. Whiter  
Vice-President, Central Region, P. R. R.

**W**ITH the purpose of encouraging neatness in appearance on the part of train service employees and at the same time making possible savings in the cost of caring for uniform clothing, a tailor shop has been opened in Room 124 Pennsylvania station, Pittsburgh, Pa. In sponsoring this innovation officers of the railroad were of the opinion that such a shop would help to enable train service employees to present a neat appearance at all times.

With this idea in mind, permission was granted to a local tailor, not an employee, to start work. The results have been exceedingly gratifying. At the semi-annual inspection last month of train service employees, there was noted an actual improvement of 87½ per cent in the appearance of these men. In other words, at previous inspections it was required to call the attention to the poor appearance of the uniforms of eight men on an average to one at the last inspection. Another result noted has been in the life of uniforms. Now that the men keep them cleaned and pressed they last longer, which of course means quite a saving.

No rental is charged the tailor, consequently his prices to employees approximate one-half the charge of other tailors. Uniforms of two or three pieces are cleaned and pressed for one dollar. Trousers are pressed for fifteen cents and the whole uniform is pressed for twenty-five cents. The prices for civilian clothes are slightly higher.

So busy has the tailor become that he employs two and sometimes three others. There are approximately 1,000 P. R. R. trainmen running into Pittsburgh daily. In addition his trade includes another 1,000 men employed in the offices in the station building. These employees keep the tailor busy and he does not solicit any other business.



Obverse and Reverse Sides of Medal Awarded the Canadian National by the Directors of the British Empire Exhibition for the Railways Exhibit at Wembley in 1924

## Freight Car Loading

WASHINGTON, D. C.

**R**EVENUE freight car loading in the week ended November 7 amounted to 1,063,322 cars, an increase of 68,043 cars as compared with the corresponding week of last year and of 27,101 cars as compared with 1923. This was also the second consecutive week of decrease as compared with the preceding week, indicating that the usual end of the year decline began in the last week of October. Increases as compared with last year were shown in all districts except the Southwestern and in all classes of commodities except grain and grain products and forest products. Coal, ore, merchandise and miscellaneous loading showed considerable increases as compared with last year, but there were decreases as compared with 1923 in all classes of commodities except coke, merchandise and miscellaneous. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

REVENUE FREIGHT CAR LOADING—WEEK ENDED NOVEMBER 7, 1925			
Districts	1925	1924	1923
Eastern	239,541	231,549	241,800
Allegheny	207,544	195,573	203,585
Pocahontas	57,600	45,713	40,908
Southern	153,004	150,791	144,847
Northwestern	156,520	134,068	163,482
Central Western	176,473	160,787	167,642
Southwestern	72,580	76,798	73,957
Total western	405,573	371,653	405,681
Commodities			
Grain and grain products	46,242	54,765	49,015
Livestock	38,107	37,150	43,014
Coal	189,212	172,764	190,587
Coke	16,038	9,592	11,334
Forest products	65,119	67,403	75,181
Ore	42,648	23,936	52,812
Mdse., l. c. l.	267,431	252,759	250,219
Miscellaneous	398,525	377,010	364,059
Total	1,063,322	995,279	1,036,221
October 31	1,091,273	1,073,374	1,035,849
October 24	1,121,455	1,113,053	1,073,841
October 17	1,106,114	1,102,300	1,073,095
October 10	1,106,099	1,088,956	1,085,938
Cumulative total 45 weeks	44,447,655	42,162,653	43,687,959

The freight car surplus for the last week of October averaged 111,619 cars, a reduction of 10,978 cars as compared with the preceding week. This included 42,949 coal cars and 49,502 box cars. There was also a shortage of 2,957 cars, including 2,298 refrigerator cars. The Canadian roads for the same week reported an average surplus of 12,120 cars, including 10,000 box cars.

### Car Loading in Canada

Revenue car loading at stations in Canada for the week ended November 7 showed a decrease of 950 cars of coal and an increase of 1,297 cars of miscellaneous freight while better weather in the western division was responsible for an increase of 3,187 cars of grain. Merchandise increased 531 cars and the total loadings were greater by 3,232 cars. The total loading of 77,370 for that week is the high record for this year and was 7,948 cars above the same week last year.

Commodities	Total for Canada			Cumulative totals to date	
	Nov. 7, 1925	Oct. 31, 1925	Nov. 8, 1924	1925	1924
Grain and grain products	20,784	17,695	17,341	371,977	402,325
Live stock	3,246	3,442	3,766	108,196	104,879
Coal	7,602	8,646	8,685	189,233	240,188
Coke	400	414	257	13,065	10,389
Lumber	3,493	3,498	3,380	160,082	161,915
Pulp wood	1,317	1,151	1,227	115,356	114,336
Pulp and paper	2,195	2,104	1,941	91,276	88,236
Other forest products	2,942	2,997	2,316	126,623	115,576
Ore	1,823	1,580	1,169	63,877	56,547
Merchandise, l. c. l.	16,899	16,522	15,459	687,785	657,320
Miscellaneous	16,669	15,528	13,881	580,369	551,534
Total cars loaded	77,370	73,577	69,422	2,507,839	2,503,245
Total cars received from connections	34,923	34,247	30,331	1,491,334	1,418,112





Electrified Right-of-Way Showing Third Rail and Pole Line Carrying 33,000-Volt Double Transmission Line and 2,300-Volt Signal and Lighting Circuits

# Electrification of Passenger Service

*Developments on Baltimore & Ohio Staten Island Lines  
described before New York Railroad Club*

THE electrification of the Staten Island Lines of the Baltimore & Ohio was described in a paper presented before the New York Railroad Club on November 20, by J. H. Davis, chief engineer, electric traction, Baltimore & Ohio. The paper is unusually comprehensive and was illustrated with about 75 lantern

or more, are required to electrify their lines by January 1, 1926, subject to the approval of the Public Service Commission of New York.

In obedience to this mandate the Baltimore & Ohio made its plans for the electrification of its passenger lines on Staten Island, these plans being drawn to give the most efficient and modern service of the kind which it would be possible to give. As a result, a modern system of rapid transit facilities has been provided so designed and constructed that as far as possible it is in harmony with existing rapid transit facilities of Greater New York.

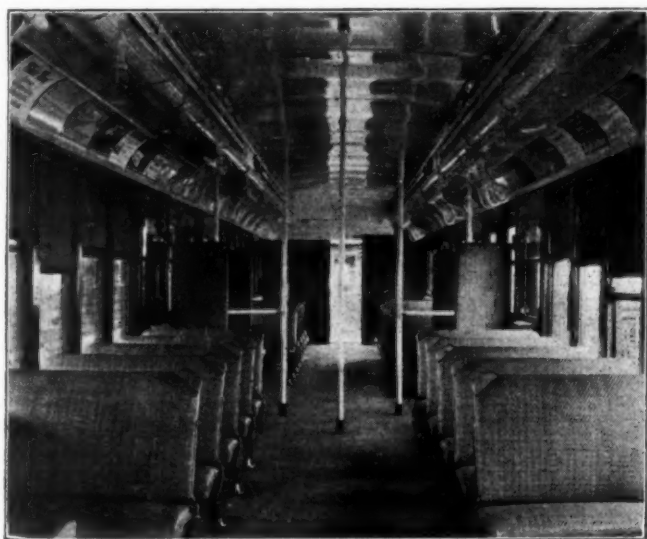
The Staten Island Lines are all double track except a short section about a mile between Princess Bay and Pleasant Plains which is now being double tracked. The Staten Island Rapid Transit Railway extends from the west bank of the Arthur Kill through St. George to South Beach. The Staten Island Railway extends from Clifton Junction to Tottenville. From standpoint of passenger service these lines are divided into three sub-divisions, as follows:

	Miles
St. George to South Beach.....	3.9
Clifton Junction to Tottenville.....	12.6
St. George to Arlington.....	5.1
Total route miles.....	21.6
Total track miles, approximately.....	50.

## Traffic

Passenger schedules are synchronized to a large extent with municipal ferry operations between St. George and Manhattan and during the summer months, when passenger traffic is at a maximum, 450 to 500 passenger train movements on the three sub-divisions are handled per day. On July 19, this year, there were reported 480 passenger train movements and approximately 1,500,000 passengers were handled during the month. In addition, 17,682 freight cars were moved during July.

The generally recognized advantages of multiple-unit operation as compared to locomotive operation, either



Interior of One of the Cars

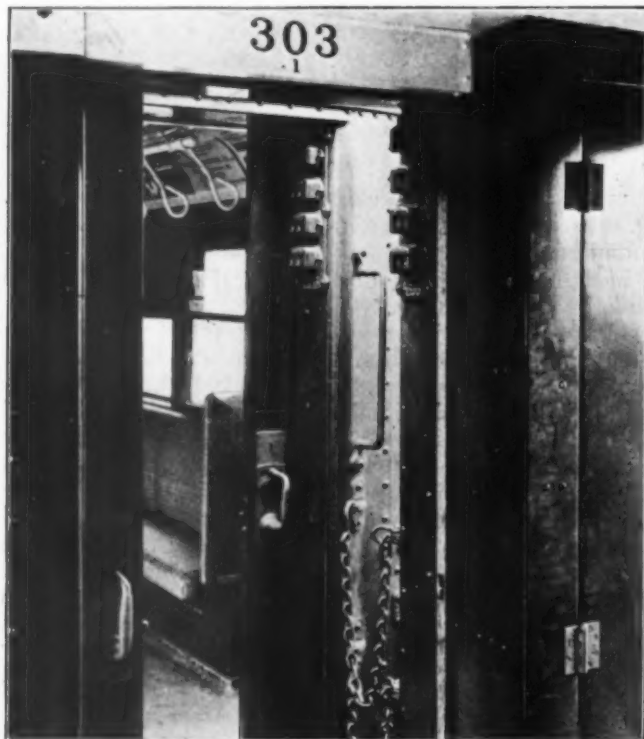
slides and three reels of motion pictures. The following paragraphs extracted from the paper contain information on this installation which was not included in the article entitled "Staten Island Electrification," published in the July 4, 1925, issue of the *Railway Age*:

By legislative enactment of the State of New York under date of March 22, 1923, railroad corporations in cities of the first class, having a population of a million

steam or electric, are especially pronounced in case of the Staten Island Lines because of elimination of switching movements at stub end terminals, such as St. George and other points, which saves considerable time and permits of more rapid dispatchment of trains. Prior to electrification, passenger traffic on the Staten Island Lines was handled with 99 wooden cars with an average seating capacity of 63 passengers per car, thus providing 6,252 seats. Taking into account the increased scheduled speeds, the elimination of switching movements at terminals, etc., the 90 new multiple unit cars and 10 trailers, each of seating capacity of 71 passengers, will provide approximately 25 per cent more capacity.

### Track

New 100-lb. A.R.A. section B track rail was laid throughout to replace 75-lb. rail on the Tottenville sub-division, 85-lb. rail on the South Beach sub-division and 90-lb. R.B. rail on the Arlington sub-division. Standard methods of laying the rail were followed. Creosoted pine third-rail ties, 9 ft. 6 in. in length, 7 in. in depth and 9 in. in width, are used and are spaced four ties for 33-ft. rail lengths making an average of 8 ft. 3 in. center to center of third rail ties, care being taken to avoid track rail joints on third-rail ties. This necessitated the respac-



Ends of Cars Showing Location of Door Control Switches

ing of other ties in the panel, replacing ballast and lining, surfacing and dressing track.

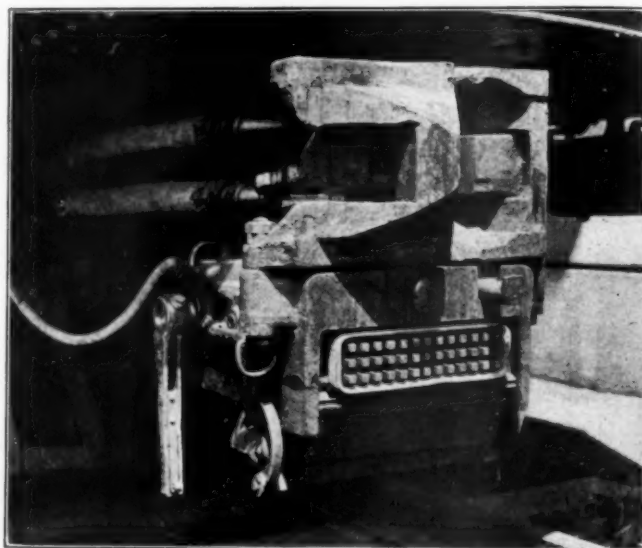
### Third-Rail

The normal length of the third-rail is 39 ft. and weighs 1,950 lb. The guard board is untreated southern long leaf yellow pine supplied in 16 ft. 6 in. lengths, 2½ in. in thickness and 7¾ in. in width. At street crossings where the third-rail is discontinued, 2,000,000 c.m. rubber insulated positive cables are laid underground in fibre ducts, the cable terminating in potheads from which point four 500,000 c.m. third-rail bare copper jumper bonds are extended to the third-rail. These bonds are flame welded to the third-rail after which rubber hose for

insulating purposes is applied to each of the four bonds and finally the ends of the bonds are attached to the positive cable by split connectors. Third-rail sectionalizing switches are installed at convenient points and suitably numbered so that in the event of necessity any particular section or sections of the third-rail may be cut out.

### Multiple Unit Cars

The cars are of all-steel construction and are provided with four side doors on each side as well as end doors to permit passengers moving from one car to another and



One of the Automatic Car Couplers

are of substantially the same exterior dimensions as those operated on the Brooklyn-Manhattan Transit Lines. Cross seats have been provided in addition to longitudinal seats and ample standing room is available near the doors, which facilitates rapid loading and unloading. The cars were completely wired before leaving the plant, where constructed, and all electrical equipment applied except the motors. These were applied after the cars were delivered at Staten Island. Every car, however, was subjected to a running test at the plant before shipment.

### PRINCIPAL FEATURES OF THE CAR

Total weight, 95,750 lb.  
 Lightweight of body complete, 55,650 lb.  
 Lightweight of trucks, complete with motors, 40,100 lb.  
 Length over couplers, 67 ft. 3¼ in.  
 Length over flanges of anti-climbers, 67 ft.  
 Width over-all, 10 ft.  
 Height over-all, 12 ft. 1¼ in.  
 Center to center of trucks, 47 ft.  
 Truck wheelbase, 6 ft. 9 in.  
 Height car floor above top of rail, 3 ft. 10½ in.  
 Seating capacity, 71.  
 Standing capacity, 169.  
 Total passenger capacity, 240.  
 Truck, cast steel, 4-wheel type.  
 Truck wheels, cast steel. Motor wheel, 34¼ in. diameter.  
 Trail wheel, 31 in. diameter.  
 Journals, 5 in. x 9 in.  
 Track gage, 4 ft. 8½ in.  
 Air brakes, WH-AMUE.  
 Couplers, automatic type H-2-A.  
 Draft gear, friction type M-11.  
 Motors, GE-282.  
 Number of motors per car, two—one per truck.  
 One hour rating of motors, 200 hp. at 600 volts, 75 deg. C.  
 Multiple unit control equipment, type P. C. 10.  
 Door operating equipment, Electro-pneumatic, including counter E.M.F. relay.  
 Storage battery, B-1-H 32 volt, 18.75 ampere hour capacity.

Each car is equipped with two series direct current commutating pole tapped field GE 282 motors, one motor on each truck. The motors have a one-hour rating of 200 h.p. at 600 volts and weigh 5,800 lb., or 29 lb. per h.p. The gear ratio is 21/62 giving a free running speed of approximately 50 m.p.h. at normal voltage on straight track.



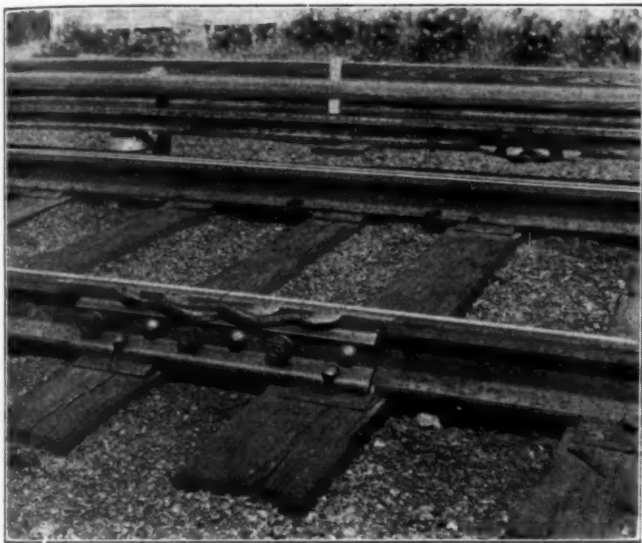
The main control equipment is of the P.C. 10 type which automatically controls the acceleration of the car although provision is made to by-pass the accelerating relay and obtain non-automatic or hand acceleration. Master controllers are equipped with the "dead man" feature which in connection with the electro-pneumatic brake equipment applies the brakes automatically if the master controller handle is released in one of its operating positions.

Owing to third-rail gaps a power bus line is used, connection being made between cars by the usual type of bus line coupler socket and plug. In order to eliminate the hazard incident to train employees handling the bus line receptacles and jumpers when heater or auxiliary

the train moves as a solid unit without shock. As two cars approach each other the coupler heads lock, the air lines are sealed by rubber gaskets, the brake pipe and main reservoir lines are opened by their respective check valves and a slide in each electric portion is extended carrying the contacts into engagement, thus completing the electric circuits. The uncoupling operation is normally pneumatic and is controlled by the uncoupling valve. The handle of this valve is removable so that it may be carried by authorized persons only. There are two of these valves on each end of each car; one in the motorman's cab and one underneath the car, so that uncoupling may be accomplished from within or outside the cab.

The side doors are operated by control switches mounted on each side of the end doors. One man may operate the doors of two cars, one on each side of his position. There are no train line door control wires between cars although the circuits are so designed that multiple unit door control equipment may be added later if desired. A counter E.M.F. relay is so connected to the main motor circuits that the doors cannot be opened while the car is in motion.

A motorman's signal light circuit is connected through the electric coupler and interlocks on the side doors of the train so that it is illuminated only when all side doors of the train are closed. This signal light is normally used as a signal to start the train. A buzzer circuit is



Running Rail and Third Rail Showing Gas Welded Bonds

circuits are on, a manually operated bus line switch is applied at each end of the car and mounted directly back of the couplers. These switches are operated by levers at either side of the car and rigid rules are enforced requiring employees to "kill" the bus line jumpers before making or breaking connections.

Type WH-AMUE brake equipment is applied to these cars providing pneumatic and electric brake operation. Maximum protection against complete loss of brakes due to failure of any part of the system is provided by the combination of two complete controlling systems, electric and pneumatic. Ordinarily the brakes are controlled electrically, pneumatic control being held in reserve without its efficiency in any way being impaired by the electric operation. Consequently if the electric control should partially or entirely fail the pneumatic portion of the system takes control of the brakes automatically and without the necessity of the motorman even being aware of the fact. This applies both to service and emergency functions of the equipment. Quick recharge is secured by use of supplementary reservoir. Protection against loss of brakes due to inadequate pressure with which to release and recharge is secured also by use of supplementary reservoir.

Each car is equipped with automatic car, air and electric couplers. Train make-up varies from one to five cars and a large percentage of trains pick up and drop off cars for both morning and evening rush hour service and full automatic couplers are necessary to reduce the time and labor of making up trains. The only coupling to be made by hand is the 600-volt bus line receptacle.

The couplers are known as the "tight-lock" type. They are held together rigidly so that all slack is eliminated and



Section of Third Rail Showing Insulator, Thermit Welded Joint and Protection Board

provided for use at flag stops or for signalling the motorman in the event that the signal light is inoperative.

#### Car Lighting and Heating

The interior of the car is well illuminated by twenty 56-watt lamps located on the lower deck rails over the center of the cross seats. The lights are connected in four circuits of five lights each. Six emergency battery lights are connected through an interlock on the potential relay so that they are lighted when current from the third rail is not available.

A headlight is mounted on the roof at each end of the car. The headlight cases are cast aluminum and are fitted with 14-inch ground glass reflector and 94-watt, 125-volt lamps, which are connected through suitable resistance to 600-volt circuit. Provision is made for dimming the headlight by means of cutting in additional

resistance through a 2-way multiple break headlight switch.

There are four marker lamps in each end of the car two of which are located in the upper deck and two just above the anti-climbers near the corners. Movable roundels carrying colored glass are provided for the upper marker lights permitting displaying green, red or yellow indications when the operating levers are moved to the proper position. The lower marker lights have removable roundels but ordinarily display only red indications.

The cars are electrically heated with thermostat controls.

#### Battery

Each motor car is equipped with twenty-four B-1-H batteries assembled in two 12-cell trays which are supported in box strapped to the underframe of the car. This battery supplies 32-volt current for use in the control system of the car as well as emergency lights and door opening devices. It is connected in the air compressor motor circuit, also arranged for charging through a resistor in such manner that the battery can be kept in a charged condition through the operation of relays which are automatically controlled by the voltage of the battery. Its ampere hour capacity is 18.75 and its weight is 135 lb.

#### Track Bonds

Careful engineering consideration was given the subject of track bonding from the standpoint of electrical



Heat Applied, 500,000 c.m. Special Work Track Bonds

and mechanical efficiency as well as cost. The gas weld bond was decided upon as the most practicable means of securing a permanent low resistance contact with a comparatively small investment in equipment. This method permitted of the use of a short and less expensive bond than was possible with any form of mechanically applied bond and one that could be readily inspected. Two bonds are installed per joint on the running rail, each bond of 250,000 c.m. capacity and 13½ in. in length. No interference with joint bolt working exists and welds are beveled downward from the rail head for wheel tread clearance. Special work bonding was carried out with

500,000 c.m. bonds having terminal and sleeve construction identical with the track joint bonds.

Four bonds each of 400,000 c.m. capacity, 9¾ in. long, are used per joint on the 150-lb. third-rail. They are gas welded and are applied to the under side of the rail.

The bonds were applied by railroad forces and are designed so as to have a minimum projection beyond the edge of the rail base and a minimum projection below the base of the rail thus providing for maximum ground clearance and with an absence of sharp bends and awkward arrangement which would result from attempting to cross the conductors of such large bonds one over the other. The terminals are of solid drop forged copper. The contact area is a little over one square inch or about



Pot Head and Third Rail Jumper Bonds

three and a half times the area of the bond. The resistance of the complete joint measured along the center line of the third-rail at points over the center over each of the outer bond terminals is .000006842 ohms. Resistance of the rail is .00000389 ohms per foot.

For experimental purposes two sections each of about 1,000 ft. in length on straight track of 150-lb. third rail were Thermit welded.

#### Signals

A complete new signal system using color position light signals was installed, replacing the old disc and semaphore types of signals previously used. As the new system requires alternating current for its operation through the track rails, impedance bonds of 1,500-ampere capacity were installed at the various signal locations and at cut sections, the number of impedance bonds installed being determined by the number of track circuits required. Generally there are but two impedance bonds for each track circuit section.

Current for signal operation is supplied from a 2,300-volt single phase supply line paralleling the running tracks and supported in the top position on Western Union pole line between Arlington and Clifton Junction, except for certain short sections of cable construction when right-of-way restrictions made cable construction necessary. From Clifton Junction to Tottenville, also South Beach, this line is supported in low position on the structure carrying the 33,000 volt supply lines. Transformers are provided at frequent intervals for reducing from 2,300 to 110 volts at which voltage it is transmitted to the signals where it is further reduced for application to the signal lights and track circuit feeds. Passenger station lighting is also supplied through the 2,300-110 volt transformers. The principle involved in the operation of the signals is that



of causing the lights to be extinguished or lighted as the route or block conditions, or both, may require.

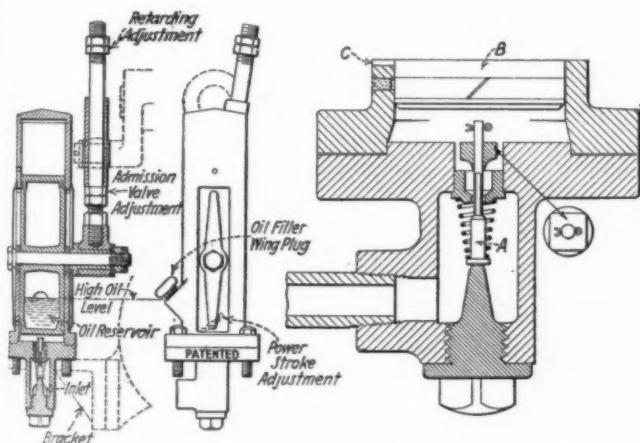
### Communication Circuits

Certain modifications in communication circuits were made on account of the paralleling of these lines for the major portion of the mileage electrified by the 33,000-volt power supply lines to the substations. The communication circuits and the power circuits were suitably transposed to minimize inductive disturbances. No objectionable inductive disturbances have been experienced in any of the communication circuits by reason of parallelism with the power circuits which in all cases are on the opposite side of the tracks from the communication lines.

## Air Operated Locomotive Bell Ringer

**A**N air operated locomotive bell ringer so designed that the bell will not turn completely over, has been placed on the market by Walters & Gustke, Battle Creek, Mich. It is an improved design of the W. G. bell motor and operates with compressed air at any pressure from 50 to 150 lb. It will start without using the bell cord and is so constructed with an air cushion at the upper end of the cylinder that it stops the bell from turning over without any shock to the bell frame, yoke, studs, bracket or the motor itself, eliminating all other retarding devices, bell cord and lubricators in the feed line.

The air inlet is the only pipe connection to make. Air



Locomotive Bell Ringer Designed so That the Bell Will Not Turn Completely Over

enters the valve chamber through this inlet. The nuts on the admission valve adjustment rod hold the piston down against the valve, holding it off its seat and allowing the air to pass under the piston. As soon as the pressure balances on both sides of the valve it drops open against the pedestal on the valve chamber. Expansion moves the piston upward. When it reaches the first open exhaust port, the valve automatically but positively closes. By raising or lowering the exhaust port, which is adjustable, the power stroke is lengthened or shortened from  $\frac{1}{2}$  to  $\frac{3}{4}$  in. The momentum which the bell has acquired carries the crank box upward on the adjustment rod until it reaches the retarding nuts, engaging them and then carrying the piston upward creating an air cushion

whereby the bell's momentum is stopped without shock, jar or noise.

The engineman or operator simply has to open the valve in the cab to start the bell swinging. He does not have to pull the rope or get a delicate adjustment on his valve to keep from turning the bell over. It has its own lubricator built in, uses the splash system and needs no lubricators in the feed pipe line.

After the bell motor is installed and lined up so that it works freely and the reservoir pressure is up, the engineer's valve is opened about  $\frac{1}{4}$ -in. turn and the lower nuts on the adjustment rod are adjusted so that the bells weight on the down stroke will open the admission valve about  $\frac{1}{32}$  in. After this adjustment is made the nuts are locked.

The upper or retarding nuts can be adjusted to meet the existing conditions. Should the motor seem to have too much power, it can be reduced by removing the highest screw plug below the exhaust port and screwing it into the highest open hole.

A study of the cross section at the right of the illustration will show why the motor always starts the bell without the aid of a rope. The admission valve *A* in its normal position is always unseated, thereby allowing a free air passage to the piston *B* the instant the operator opens the valve in the cab. Valve *A* stays in this position until piston *B* in its upward travel reaches the first open exhaust port *C*. The sudden drop in pressure under the piston causes the valve *A* to become seated until the piston on its return unseats it again.

## The Importance of Reduction in Railway Taxation\*

By R. H. Aishton

President, American Railway Association

**T**HE present taxes on the railroads of this country are a burden and a growing burden. The return realized by the railways of the country under rates determined by the Interstate Commerce Commission has fallen materially below the fair return set up in the Transportation Act of 1920, which makes the increasing burden of taxes increasingly hard to bear.

Railways are subjected to a great variety of forms of taxation.

All of these taxes and charges begging description in their variety, and increasing steadily in amount from year to year, have been imposed by legislative bodies with little or no regard to equity or theory.

The taxes levied on the railways create confusion, duplication and many inequalities add to the cost of railway operation in the expenditure required for the preparation of special reports and the filing of countless forms with governmental agencies.

Railways' taxes more than doubled from 1916 to 1924, while in 1925 they are averaging almost exactly \$1,000,000 a day. During the year 1924 alone, and based upon the freight traffic handled in that year, the shippers of the United States paid a total freight bill smaller by more than \$600,000,000 than they would have paid had the freight rates of 1921 remained in effect without reduction. This reduction has been made possible through large additions of capital.

The decline of thirteen per cent in the average freight rates, compared with the increase of thirty per cent in

\*Abstract of address at National Economy and Taxation Reduction Conference, New York City, November 18.

total taxes paid by the railways since 1921, furnishes a significant commentary on the increasingly cumulative burden of expense of government to the railways. Adequate transportation service is of universal interest and adequate service cannot be maintained unless operating revenues exceed operating expenses, including taxes, and leave a fair margin of return on investment. The railways have been seeking earnestly for every means of economy in operating their properties. They believe that all forms of government should likewise seek every possible economy in performing the functions for which they are designed. By this means the need for taxes would be reduced.

## T. C. Powell Advocates Unification of Service

**A**T the meeting of the Western Railway Club Chicago, on Nov. 16. T. C. Powell, president of the Chicago & Eastern Illinois, made three important suggestions looking toward simplified and more efficient railroading; namely, unified freight terminals, pooled passenger train service and revenue between important centers of population and a uniform freight classification in place of the three major classifications now in effect. Concerning unified freight terminals Mr. Powell said:

"The increase in the switching roads and in the area served in each one of the great commercial centers of the country, has resulted in increased cost of operation, followed by increased charges for the switching service, and an analysis of certain operations has developed that the sum total of the various switching charges involved in the movement of individual cars from one industrial zone to another industrial zone is greater than the tariff rate provided for such service. This is bad enough, but it can be remedied by increasing the total charge to the shipper.

"The danger is that multiple switching operations will result in discrimination between different localities, so that two industries located on the same switching road and wishing to interchange commodities, will be able to do so at a materially lower rate than if they were located on more than one switching road and the traffic had to pass over the rails of two or more individual companies. The public, therefore, is quite as much interested in unified terminals and the common operation of such unified systems at different points in the country as are the railroad companies.

"I divide the terminals of the country into two classes—those which are situated on the navigable waters of the sea coast or of the interior, and those which are situated away from any water front. The first class must take into account the United States Government because of the control of the war department over the navigable waters of the United States. At the great seaports and the Great Lakes and on the navigable rivers, I advocate an organization in which the War Department should be represented, whereby each point may consolidate into one common operation all of the switching tracks, industrial sidings and water front facilities, so that there shall be a reduced cost of terminal service to the carriers, and so that discrimination against shippers shall be removed where such discriminations now exist and shall be prevented in the future.

"At the other points not located on navigable waters, the matter is wholly in the hands of the railroads and the municipal and state authorities. The municipal

authorities must be consulted because of the ordinance necessary to permit of the laying of tracks and the occupation of streets. The state authorities must be consulted because of their jurisdiction over the rates in so far as they do not interfere with interstate commerce and I think it is commonly recognized that the state, represented by the properly constituted bodies variously known as state railroad commissions, state railroad and warehouse commissions, public utility commissions, etc., takes precedence over any municipal ordinances which may have originally prescribed certain rates of freight or rates of fare.

"I know that the opponents of unified operation of terminals have contended that this removes the incentive for better service by one railroad as against another railroad, and to a limited extent this is probably true, but it must be remembered that there are different organizations throughout the country which already provide a unified terminal service, such as the Terminal Railroad Association of St. Louis, the New Orleans Public Belt and the Kentucky & Indiana Terminal, while in the New York terminal district the Port Authority has already secured the approval of the owner lines to establish a new belt line under common operation."

Mr. Powell said that an investigation of motor bus and private automobile competition with the steam railroads showed that the public apparently places all considerations of speed, comfort, eating accommodations, expense and even safety second to convenience, particularly as relates to frequency of service.

"Eliminating, therefore, those items which do not seem to be the governing factors, it would seem that the one controlling consideration is that of convenience, and it is my belief that a pooling of railroad trains and railroad service between the important centers of the country would extend to the traveling public a greater convenience of train service, while the railroads would economize by reducing the expensive luxuries which are apparently not demanded by the great mass of the traveling public, and would result in other economies.

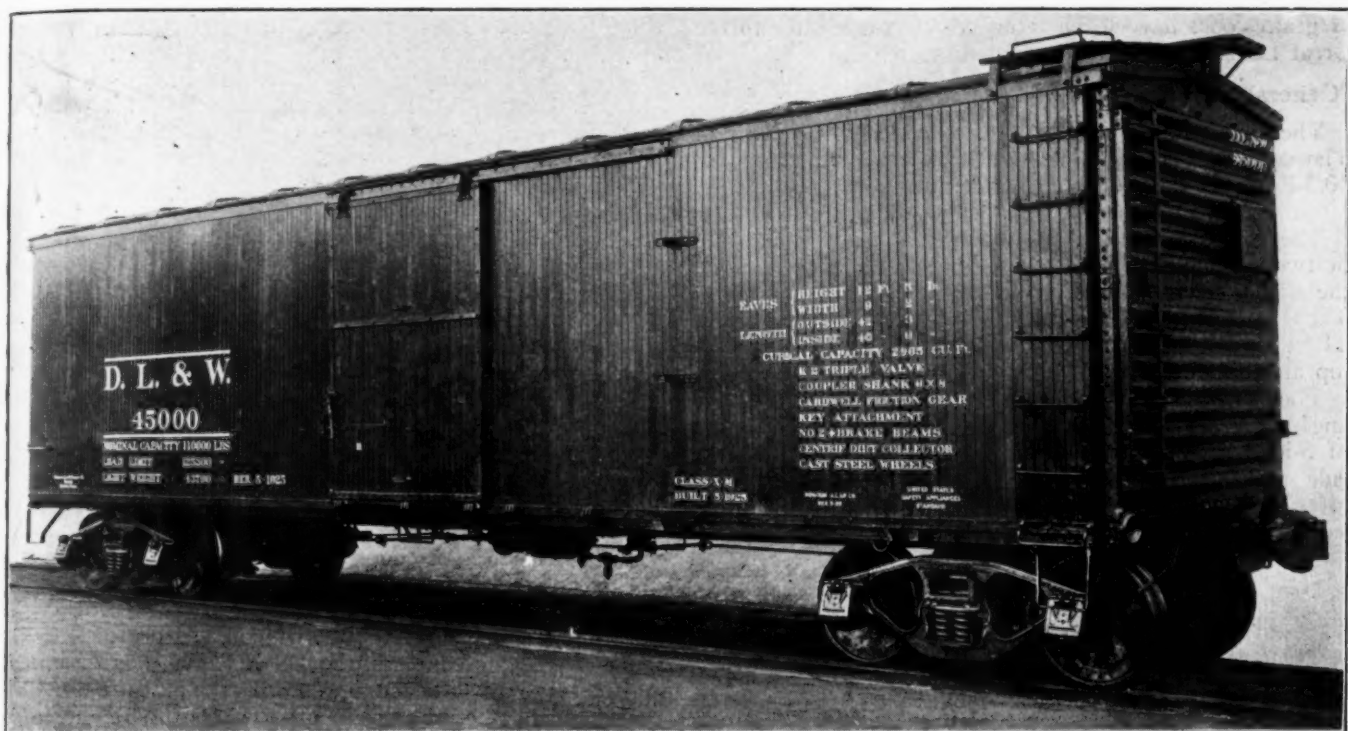
"The third effort towards simplicity in railroading which I would advocate is the approval by the public and by the carriers of a uniform freight classification in place of the three major classifications now in effect and of the numerous unnecessary exceptions to the classifications and special commodity rates, which result only because there is not now a single classification prevailing throughout the country. I was at one time opposed to a single classification on the assumption that it would be inflexible and, therefore, detrimental to development, but I am now convinced that the machinery that has been set up by the carriers and the associations of shippers will so function as to prevent unnecessary inflexibility and to permit changes where changes are necessary through the demands of commerce.

"Perhaps I am undertaking too large a contract in advocating at one time three major changes in the present railroad management and in the relations between the railroads and the public, but I conceive that it is the duty of railroad officials to look as far ahead as possible, and not always to be the victims of circumstances."

PASSENGER TRAFFIC on the Illinois Central into Champaign, Ill., on November 6 and 7 for the Illinois-Chicago football game, exceeded that of the previous week when 19,547 passengers were carried into Champaign and 19,713 were carried out on November 7, 8 and 9. On November 6 and 7, 18,495 persons traveled to Champaign from Chicago alone on eight regular and 23 special trains.



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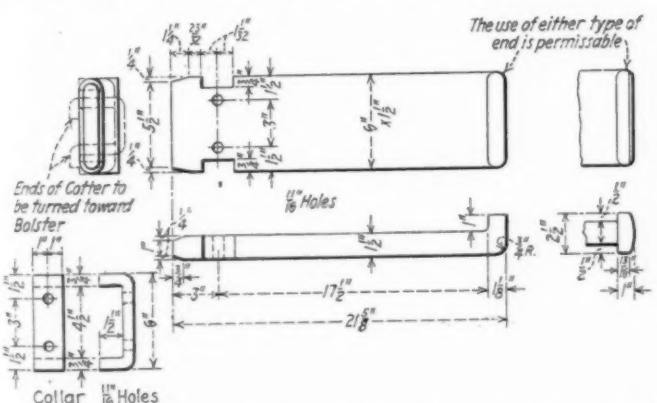
D. L. & W. 55-ton, 40-ft. 6-in., Double Sheathed Box Car Built According to A. R. A. Specifications

# D. L. & W. Acquires Double Sheathed 55-Ton Box Cars

*Increase in weight of 15 per cent accompanys capacity increase of 100 per cent—Built according to A.R.A. specifications*

**T**HE terminal facilities of the railroads serving New York are steadily becoming inadequate to unload quickly the enormous number of cars which enter the metropolitan area every 24 hours. Enlargement of

One of the methods of combating this problem is to increase the capacity of the cars handling grain, flour, cement, coffee, sugar, etc., without greatly increasing the weight. This was accomplished in the 1,000, 55-ton, steel underframe, double sheathed box cars built by the American Car & Foundry Company, Berwick, Pa., according to A. R. A. specifications. The cars have been in service six months and have proved very satisfactory. These cars were obtained to replace 60,000-lb. capacity equipment retired on account of age, construction and light capacity. The cars dismantled weighed 38,000 lb. The new cars, which will carry 125,000 lb. of grain from the Great Lakes to tidewater, have double the capacity of the old cars, with an increase in weight of only 5,700 lb., or, by increasing the weight of a unit 15 per cent, the carrying capacity was increased 100 per cent. This advantage is particularly noticeable in the room occupied by the trains in the terminal. The capacity of each car unloaded on the grain dock is now equal to two of the older type and it can be unloaded in one-half the time formerly required to unload the same capacity. These cars weigh 1,800 lb. less than the U. S. R. A. 80,000-lb. capacity cars. The switching of grain trains has been reduced one-half on account of the increased capacity per car. The royalty on patent grain doors and all labor incident to preparing cars at the loading and unloading points has reduced one-half. Only one-half the number



A Method of Fastening Coupler Yoke Cross Key Cotters to Prevent Them from Shearing Off

the terminals is restricted by the lack of sufficient ground for expansion. The Delaware, Lackawanna & Western is one of the railroads confronted with this problem at its eastern terminus.

of grain doors have to be returned from tidewater to the Great Lakes in shipping any amount of grain.

#### General Arrangement and Details of Construction

The underframes are of openhearth steel throughout. The center sills consist of two 12-in. A. R. A. standard 40.3-lb. special rolled channels, reinforced by a 1/4-in. by 20-in. top cover plate.

The body bolsters are of the built-up design consisting of two 3/8-in. diaphragms, extending from the center to the side sill channel and spread 7 1/2 in. between the webs. They have a steel filler casting between the center sills. These are all connected together and reinforced by 1/2-in. top and bottom cover plates.

The side sills are of 7-in., 16.4-lb. channels and have angles riveted to the outside faces. The end sills are of 5-in. by 3-in. by 3/8-in. angles and are riveted to the side sills, diagonal braces and center sills. The body



Murphy Corrugated Ends Are Used on These Cars

framing consists of 3-in. Z-posts and 3-in. Z-braces riveted to the top plate gusset and side sill.

The cars are equipped with Murphy corrugated steel ends which are made in two sections, the upper section being 3/16 in. and the lower 1/4 in. thick, with substantial gussets extending back over the outside sheathing.

The siding is Douglas fir, 13/16-in. thick, dressed on both sides, tongued and grooved. The end and side lining is of the same material, also tongued and grooved, extending from the floor to the top of the car and all secured to 2 1/2-in. by 2-in. fillers bolted to the corrugations of the steel ends. The 2 1/4-in. thick by 5 1/4-in. face yellow-pine flooring is tongued and grooved and extends to the outside edge of both end sills. Steel threshold plates are applied in each door.

The Hutchins dry-lading roof made of No. 16 gage steel is used and is supported by pressed steel carlines. The latitudinal running boards are of Douglas fir, dressed on one side to 1 1/8 in. thick and applied rough side up. The longitudinal running boards are of three planks, 6 in. wide by 1 1/8 in. thick, dressed on one side and applied

rough side up. They are secured to pressed steel saddles by 3/8-in. carriage bolts.

Single side Camel No. 27 doors are used which provide an opening of 6-ft. They are steel bound, top hung, equipped with Camel combination door stop, lock and door closing and starting device.

The cars are equipped with 55-ton Bettendorf 5-ft. 6-in. wheel base trucks, with U-section cast steel frames. The journal boxes are an integral part of the truck frames, and conform to the A. R. A. standard dimensions for 5 1/2-in. by 10-in. axles. The Barber lateral motion device and Woods tip roller side bearings are incorporated in the truck design. The truck bolsters are of the cast steel type. The ends of each bolster are provided with three rollers of cold rolled steel 2 in. in diameter and 10 in. long. The combination roller seats and spring caps are of drop forged steel. Davis cast steel wheels are used, which reduced the light weight 1,200 lb. per car.

The draft gear is the Cardwell type G-11-AA and the A. R. A. standard Type D coupler with a 6-in. by 8-in. shank is used. The couplers are equipped with 18 1/2-in. pocket Universal cast steel yokes. The uncoupling device is the Carmer type. To prevent the coupler yoke cross key cotters from shearing off, which is so prevalent with the Type D key couplers, the D., L. & W. has designed and patented a key fastening, shown in one of the illustrations, which takes the strain off the cotter. It has four and one-half times greater shearing resistance than the 5/8-in. U bolt used on the A. R. A. cars. This fastening has eliminated cross keys from working out.

#### Brake Equipment

The air brake equipment is the Westinghouse quick-action, automatic Schedule K. C. 1012, with K-2 triple valves, 10-20 retaining valves, duplex spring loaded; Creco four-point brake beams with safety supports, with Schafer pressed steel bottom connections and drop forged U-type self-locking hangers are used. All the air brake pins and top brake beam hanger pins are equipped with positive brake pin locks manufactured by the Illinois Corrugated Metal Company. The hand brakes are connected direct to the brake cylinder push rod with a Universal booster introduced in the hand brake rod attachment to develop a pressure equal to the nominal air brake pressure. The Vissering perforated malleable iron brake step board is used.



Looking East from Corona, Col., on the Denver & Salt Lake —Elevation, 11,500 ft., Highest Point Reached in America by a Standard Gage Road



## General News Department

At the next meeting of the Railway Club of Pittsburgh to be held on November 27, Roy V. Wright, managing editor of the *Railway Age*, will deliver an address entitled "Looking Ahead."

S. F. Fannon, of the Sherman Service, Inc., will deliver an address entitled "The Value of Man Power" at the next meeting of the Cleveland Steam Railway Club to be held on December 7.

The next meeting of the Canadian Railway Club will be held on December 8 when a paper will be read on inspection of material for railway purposes, by W. R. Job, vice-president, Milton Husey Company, Montreal.

"Comparative Merits of Steam and Electricity in Railroad Operation" is the title of a paper to be presented before the New England Railroad Club at Boston on December 8 by L. K. Silcox, general superintendent of motive power of the Chicago, Milwaukee & St. Paul.

The Interstate Commerce Commission has suspended until further order the effective date of its second train control order (January 14, 1924) in so far as it concerns the Boston & Maine; but has denied that road's petition for a further suspension of the effective date of its first order (June 13, 1922).

A train wrecker, Herbert Hale, 21 years old, was found guilty of murder in the court at Stanford, Ky., on November 14 and was sentenced to imprisonment for life. Hale had derailed a train of the Louisville & Nashville on September 5, causing the death of the engineman and the injury of 35 persons. Hale confessed and implicated another man, who is yet to be tried.

Transportation will be represented at the Philadelphia Sesquicentennial Exposition next year by many exhibits in the "Machinery, Engineering, Mines, Metallurgy and Transportation Palace," according to an announcement issued by the publicity division of the exposition. Exhibits planned for include locomotives, steam, electric and Diesel, and other types of railway equipment and appliances.

Indictments against W. T. LaMoure, freight traffic manager of the Boston & Maine, and two employees of that road; an employee of the New York Central at Chicago; and an employee of the Chicago, Milwaukee & St. Paul at Chicago, were returned by a grand jury in the United States court at Chicago on November 18 on charges that they are members of an organization making and shipping liquor in violation of the law.

At Sunbury, Pa., on the evening of November 16, a robber, not masked, intimidated the ticket agent of the Pennsylvania Railroad in his office and took \$410. The robbery was committed while a large number of passengers were near. A few minutes before this the ticket agent of the Reading Company, a short distance away, had been threatened, apparently by the same man, but without loss, the robber disdaining the small sum (\$15) which the agent had exposed.

The Boston & Maine announces the conclusion of an arrangement with the Canadian Pacific under which 104 miles of leased lines operated by the Boston & Maine are to be operated hereafter by the Canadian Pacific. The territory covered is that from Wells River, Vt., northward through St. Johnsbury and Newport to Lennoxville, Que., 101 miles (70 miles in Vermont) and the branch from Beebe Junction, Que., to Stanstead, Que., three miles. The Boston & Maine was promoted by the belief that these lines, because of their extreme northerly location, could be operated to better public advantage by the Canadian road, with resulting operating economies to both roads.

### Apportionment of Costs of

#### Straightening Chicago River

The Chicago citizens' committee appointed to estimate the cost of straightening the Chicago river between Polk and 18th streets in Chicago, the greater part of which five railroads—the Baltimore & Ohio, the Chicago, Rock Island & Pacific, the New York Central, the Chicago & Western Indiana and the Pennsylvania—are being asked to pay, has estimated the amount which each road should be asked to contribute as follows: Baltimore & Ohio, \$3,789,480; Chicago, Rock Island & Pacific, \$1,344,950; New York Central and Rock Island, \$2,577,070; Chicago & Western Indiana, \$175,800; and Pennsylvania, \$14,000. According to the citizens' committee these amounts represent the value of the additional land which will be owned by the roads when the river straightening has been effected. The New York Central and the Rock Island are said to have given tentative approval to the proposal that they contribute to the river straightening expense. The Baltimore & Ohio, which is affected the most, is now engaging in a series of conferences with the citizens' committee prior to a statement of its position.

### September Net Breaks Record

The net railway operating income of the Class I railroads for the month of September amounted to \$134,584,916, the largest that has ever been reported for a single month in the history of the roads, although it represented only that month's proportion of an annual rate of return of 5.42 per cent on property investment, according to a statement issued by the Bureau of Railway Economics. This compares with \$117,017,915 for last September. Operating revenues for the month amounted to \$565,451,808, as compared with \$541,046,829 for September, 1924, while operating expenses amounted to \$388,096,129, as compared with \$381,791,851 last September. Twelve Class I roads operated at a deficit for the month, of which seven were in the Eastern district and five were in the Western district.

For the nine months' period the net operating income amounted to \$797,347,520, as compared with \$679,445,117 in 1924. This was at the annual rate of return of 4.77 per cent on property investment. Operating revenues for the nine months amounted to \$4,538,461,444, as compared with \$4,403,724,081 last year, while operating expenses totaled \$3,398,739,554, as compared with \$3,399-831,013 last year.

### Great Northern Completes Electrification Plan

The Great Northern has completed tentative plans for a \$10,000,000 water power development in the vicinity of Lake Chelan in north central Washington. The proposed facilities will provide for the development of 75,000 hp. to be used in the projected electrification of the Great Northern's line over the Cascade mountains and will also enable 80,000 acres of land in the vicinity to be irrigated. In connection with its electrification plan, the Great Northern contemplates the construction of an 8½-mile tunnel through the Cascade mountains to replace the present shorter tunnel and snow sheds.

Through a subsidiary, the Chelan Electric Company, the Great Northern has executed a contract with the Washington Water Power Company for the construction and operation of a dam and power plant at Lake Chelan. It is intended that the power generated at this plant shall be used eventually in the operation of trains over the Cascade mountains, but it is recognized that this project will require years for completion.

The proposed new tunnel through the Cascades which will be 8½ miles long, will replace 17 miles of the present line. The maximum grade will be considerably reduced and a number of snow sheds eliminated. The present plans for the tunnel call for an eastern entrance at Berne, Wash., and a western entrance near Scenic.

## Freight Operating Statistics of Large Steam Roads—Selected Items for September, 1925,

Region, road and year	Average miles of road operated	Train-miles	Locomotive-miles		Car-miles		Ton-miles (thousands)		Average number of locomotives on line daily				Stored
			Principal and helper	Light	Loaded (thousands)	Per cent loaded	Gross. Excluding locomotive and tender	Net. Revenue and non-revenue	Service-able	Un-serviceable	Per cent un-serviceable		
New England Region:													
Boston & Albany.....	1925	404	229,859	254,098	34,501	5,043	70.3	252,912	97,955	119	18	13.0	4
	1924	394	243,255	259,141	26,962	4,861	70.6	245,570	97,953	125	19	13.4	...
Boston & Maine.....	1925	2,319	504,763	579,345	57,110	13,059	73.0	636,043	259,833	354	86	19.5	61
	1924	2,366	485,588	552,697	54,939	12,161	73.4	598,635	251,211	329	128	28.1	39
N. Y., New H. & Hartf.....	1925	1,892	459,946	479,315	32,020	13,173	71.5	646,198	264,572	288	52	15.4	38
	1924	1,953	450,646	474,308	27,728	12,243	72.1	608,669	260,134	304	68	18.2	39
Great Lakes Region:													
Delaware & Hudson.....	1925	875	307,347	423,822	47,191	8,404	66.2	516,398	255,130	244	36	13.0	99
	1924	888	353,817	472,081	41,360	9,412	66.7	592,594	300,978	254	36	12.5	83
Del., Lack. & Western.....	1925	993	499,558	565,808	67,377	15,707	71.2	816,610	334,881	298	54	15.3	85
	1924	993	555,918	649,024	95,509	17,735	70.8	976,929	438,992	301	62	17.0	43
Erie (inc. Chic. & Erie)....	1925	2,325	936,390	1,033,782	126,590	36,400	65.3	2,083,144	829,931	620	97	13.5	219
	1924	2,325	990,091	1,103,756	119,594	38,893	68.8	2,240,776	995,025	659	103	13.5	167
Lehigh Valley .....	1925	1,346	509,717	562,128	84,079	16,568	68.8	913,137	398,423	418	82	16.5	103
	1924	1,357	587,019	647,097	72,806	18,114	66.8	1,074,736	503,689	481	68	12.4	131
Michigan Central .....	1925	1,826	551,239	569,780	16,559	19,319	65.0	1,006,196	378,377	305	46	13.2	112
	1924	1,827	531,327	544,251	22,857	18,155	67.8	962,327	385,169	314	58	15.7	96
New York Central.....	1925	6,478	2,094,051	2,348,162	168,721	78,190	63.2	4,746,679	2,067,972	1,171	349	23.0	277
	1924	6,447	1,948,812	2,160,269	147,457	72,598	65.2	4,274,981	1,898,040	1,280	374	22.6	426
New York, Chic. & St. L.....	1925	1,669	638,292	649,378	8,061	20,521	67.4	1,106,721	439,478	234	68	22.5	44
	1924	1,669	629,401	638,767	5,329	20,181	70.3	1,072,344	440,989	252	66	20.9	51
Pere Marquette.....	1925	2,198	424,612	436,458	7,580	11,003	67.4	612,274	278,884	189	20	9.4	20
	1924	2,227	375,032	387,159	10,283	9,914	71.5	535,131	257,760	191	24	11.3	37
Pitts. & Lake Erie.....	1925	231	120,720	122,556	1,065	4,169	66.1	304,811	175,890	72	17	18.9	34
	1924	231	108,105	110,684	959	3,767	64.2	284,829	168,539	73	15	17.3	15
Wabash .....	1925	2,497	692,211	724,911	13,520	22,770	71.5	1,219,720	512,747	328	57	14.9	64
	1924	2,459	663,700	698,067	13,966	21,220	72.9	1,122,594	478,276	308	49	13.8	53
Central Eastern Region:													
Baltimore & Ohio.....	1925	5,196	1,946,717	2,288,271	172,829	59,030	64.9	3,796,895	1,875,317	1,012	252	19.9	67
	1924	5,207	1,803,252	2,068,150	161,585	53,033	66.7	3,232,097	1,585,119	974	308	24.0	117
Central of New Jersey.....	1925	691	249,953	276,645	36,300	6,351	64.3	375,185	174,521	243	33	12.0	58
	1924	692	279,120	304,389	35,075	7,091	61.7	450,389	222,437	231	47	17.1	33
Chicago & Eastern Ill.....	1925	945	236,174	237,594	3,545	7,104	66.0	413,086	196,783	144	23	13.5	63
	1924	945	241,330	242,767	3,840	6,868	67.8	402,768	203,217	121	34	21.6	45
Cleve., Cin., Chic. & St. L.....	1925	2,381	749,718	790,661	24,931	24,524	63.5	1,564,755	751,245	350	75	17.6	35
	1924	2,380	683,983	729,097	12,063	22,744	65.4	1,413,555	692,248	368	84	18.6	66
Elgin, Joliet & Eastern.....	1925	460	121,172	127,649	4,768	3,867	67.0	284,391	152,034	78	20	20.5	3
	1924	460	100,294	107,495	4,397	3,163	65.3	236,844	127,461	86	12	12.4	22
Long Island .....	1925	393	47,722	51,629	12,225	619	58.1	38,743	14,814	42	12	22.4	...
	1924	393	45,905	48,733	7,396	664	61.0	40,005	16,112	44	13	23.2	5
Pennsylvania System .....	1925	10,881	4,521,213	4,896,018	365,593	135,125	65.3	8,762,612	4,202,365	2,686	696	20.6	298
	1924	10,942	4,327,396	4,676,733	336,429	127,870	67.1	8,131,910	3,972,239	2,711	836	23.6	321
Reading .....	1925	1,132	582,561	639,783	65,237	15,670	61.4	1,052,104	530,773	393	84	17.5	155
	1924	1,141	617,094	674,417	65,121	15,715	64.6	1,037,051	540,087	425	79	15.7	136
Poconontas Region:													
Chesapeake & Ohio.....	1925	2,627	1,210,143	1,263,450	41,033	38,849	56.9	3,069,563	1,660,489	490	97	16.6	17
	1924	2,555	1,043,524	1,122,996	34,079	32,795	58.9	2,502,279	1,380,694	443	97	17.9	6
Norfolk & Western.....	1925	2,231	898,815	1,103,745	37,016	30,689	61.0	2,537,720	1,389,466	590	58	9.0	137
	1924	2,230	851,109	1,011,000	29,030	25,901	60.4	2,082,694	1,100,071	592	93	13.6	167
Southern Region:													
Atlantic Coast Line.....	1925	4,900	808,218	842,761	14,974	20,874	66.8	1,145,697	480,777	378	65	14.7	35
	1924	4,865	629,824	645,129	10,499	15,786	65.9	829,413	344,336	419	52	11.1	112
Central of Georgia.....	1925	1,907	380,263	385,256	6,108	8,707	74.0	462,841	215,098	150	12	7.6	21
	1924	1,907	293,271	294,467	4,738	6,508	73.1	336,151	150,324	139	18	11.2	15
I. C. (inc. Y. & M. V.).....	1925	6,225	1,868,547	1,881,949	40,361	55,209	66.2	3,356,374	1,490,828	740	114	13.3	21
	1924	6,197	1,716,024	1,735,046	37,560	51,681	66.5	3,136,964	1,407,966	771	122	13.7	62
Louisville & Nashville.....	1925	5,027	1,852,372	1,979,191	60,222	36,086	61.4	2,434,043	1,197,459	591	102	14.7	7
	1924	5,026	1,640,225	1,741,430	64,049	31,966	62.5	2,108,190	1,035,240	612	117	16.1	46
Seaboard Air Line.....	1925	3,752	557,471	577,251	12,197	14,348	67.2	784,059	328,934	234	21	8.1	1
	1924	3,547	434,365	451,251	4,677	10,372	69.0	545,290	229,037	210	45	17.6	15
Southern Ry. ....	1925	6,852	1,539,628	1,585,237	36,283	37,310	69.3	2,012,016	848,291	831	117	12.3	57
	1924	6,840	1,348,186	1,378,864	32,576	31,745	71.0	1,671,813	704,376	873	119	12.0	45
Northwestern Region:													
Chic. & North Western.....	1925	8,463	1,590,216	1,645,482	27,885	41,163	66.0	2,350,945	950,939	739	205	21.7	76
	1924	8,463	1,722,988	1,791,705	36,907	42,330	65.4	2,434,257	974,129	808	249	23.6	83
Chic., Milw. & St. Paul.....	1925	11,201	1,745,092	1,862,556	97,788	52,990	64.7	3,052,103	1,342,814	909	190	17.3	105
	1924	10,983	1,707,113	1,792,448	76,228	48,860	65.2	2,844,568	1,284,616	970	160	14.1	114
Chic., St. P., Minn. & Om.....	1925	1,726	341,954	363,743	14,639	7,157	72.8	373,879	162,822	170	37	17.9	2
	1924	1,726	382,786	412,403	16,614	7,662	75.8	415,555	193,163	165	40	19.3	6
Great Northern .....	1925	8,232	1,165,270	1,200,252	56,590	40,427	60.6	2,592,761	1,205,293	608	143	19.1	50
	1924	8,251	1,165,907	1,191,380	53,330	35,450	58.5	2,312,727	1,070,048	630	142	18.4	41
M., St. P. & S. Ste. M.....	1925	4,372	733,022	753,921	7,127	18,529	65.5	1,048,845	501,274	303	39	11.4	4
	1924	4,374	646,269	659,884	7,728	15,813	68.8	867,501	419,717	300	43	12.5	4
Northern Pacific.....	1925	6,527	1,063,717	1,119,422	55,819	34,224	70.4	1,942,223	886,475	538	123	18.6	58
	1924	6,447	973,586	1,015,579	50,210	29,305	67.6	1,707,177	777,433	578	135	19.0	87
Oreg.-Wash. R. R. & Nav.....	1925	2,185	232,494	252,									



Compared with September, 1924, for Roads with Annual Operating Revenues Above \$25,000,000.

Region, road and year	Average number of freight cars on line daily					Gross tons per train, excluding locomotive and tender	Net tons per train	Net tons per loaded car	Net ton-miles per car-day	Car miles per car-day	Net ton-miles of road per day	Pounds of coal per 1,000 gross ton-miles including locomotive and tender	Locomotive miles per locomotive day	
	Home	Foreign	Total	Per cent un-service-able	Stored									
New England Region:														
Boston & Albany.....	1925	2,221	6,431	8,652	2.8	...	1,100	426	19.4	377	27.6	8,079	178	70.4
	1924	2,463	5,314	7,777	4.0	...	1,010	403	20.2	420	29.5	8,289	189	66.0
Boston & Maine.....	1925	12,991	14,186	27,177	9.7	...	1,260	515	19.9	318	21.9	3,734	133	48.2
	1924	14,165	14,986	29,151	11.8	...	1,233	517	20.7	287	18.9	3,539	136	44.3
N. Y., New H. & Hartf.....	1925	19,788	20,090	39,878	22.3	482	1,405	575	20.1	221	15.4	4,662	125	50.0
	1924	20,772	17,125	37,897	21.9	544	1,351	577	21.2	229	14.9	4,439	137	45.0
Great Lakes Region:														
Delaware & Hudson.....	1925	9,580	6,264	15,844	6.8	1,774	1,680	830	30.4	536	26.7	9,717	166	56.0
	1924	9,082	5,743	14,825	7.7	...	1,675	851	32.0	676	31.7	11,298	175	59.0
Del., Lack. & Western.....	1925	16,210	9,323	25,533	3.2	540	1,635	676	21.3	437	28.8	11,246	153	59.9
	1924	15,847	8,951	24,798	4.0	11	1,757	789	24.7	589	33.6	14,726	156	68.5
Erie (inc. Chic. & Erie)....	1925	35,531	22,460	57,991	8.5	9,171	2,225	886	22.8	477	32.0	11,896	119	53.9
	1924	34,001	21,573	55,574	6.7	7,451	2,263	1,005	25.6	596	33.9	14,267	123	53.5
Lehigh Valley .....	1925	20,676	9,638	30,314	6.4	3,894	1,791	782	24.0	438	26.4	9,869	143	43.1
	1924	21,309	9,931	31,240	6.9	308	1,831	858	27.8	537	28.9	12,377	145	43.7
Michigan Central .....	1925	12,804	19,434	32,238	4.9	571	1,825	686	19.6	391	30.7	6,908	112	55.6
	1924	12,083	16,174	28,257	5.5	130	1,811	725	21.2	454	31.6	7,029	118	50.8
New York Central.....	1925	59,567	72,512	132,079	4.8	4,861	2,267	988	26.4	521	31.2	10,642	112	55.2
	1924	65,910	67,442	133,352	4.4	14,904	2,194	974	26.1	474	27.8	9,814	117	46.5
New York, Chic. & St. L. ....	1925	11,164	11,791	22,955	6.4	1,343	1,734	689	21.4	638	44.1	8,779	109	72.6
	1924	9,041	12,030	21,071	6.3	...	1,701	701	21.9	697	45.3	8,800	116	67.6
Pere Marquette .....	1925	8,491	11,751	20,242	4.3	...	1,442	657	25.3	459	26.9	4,229	105	70.9
	1924	8,487	11,896	20,383	7.4	...	1,427	687	26.0	422	22.8	3,858	120	61.6
Pitts. & Lake Erie.....	1925	14,045	7,093	21,138	7.6	1,414	2,525	1,457	42.2	277	9.9	25,331	63	46.2
	1924	14,787	7,568	22,355	4.3	1,727	2,635	1,559	44.7	251	8.7	24,272	67	42.4
Wabash .....	1925	12,903	12,456	25,359	3.0	100	1,762	741	22.5	673	41.8	6,845	120	63.8
	1924	11,874	10,480	22,354	3.8	...	1,691	721	22.5	713	43.3	6,483	130	66.5
Central Eastern Region:														
Baltimore & Ohio.....	1925	69,213	41,922	111,135	8.4	1,746	1,950	963	31.8	562	27.3	12,030	154	64.9
	1924	69,869	38,803	108,672	15.5	2,716	1,792	879	29.9	486	24.4	10,148	165	58.0
Central of New Jersey.....	1925	17,374	11,132	28,506	4.5	2,639	1,501	698	27.5	204	11.5	8,420	183	37.8
	1924	17,501	10,491	27,992	5.0	2,628	1,614	797	31.4	265	13.7	10,715	173	40.7
Chicago & Eastern Ill.....	1925	12,966	4,857	17,823	19.8	639	1,749	833	27.7	367	20.0	6,940	126	48.4
	1924	14,043	4,596	18,639	21.0	879	1,669	842	29.6	361	18.0	7,167	141	53.1
Clev., Cin., Chic. & St. L. ....	1925	15,424	21,171	36,595	5.5	1,785	2,087	1,002	30.6	683	35.1	10,519	113	63.9
	1924	14,259	21,390	35,649	5.6	1,665	2,067	1,012	30.4	645	32.4	9,695	118	54.7
Elgin, Joliet & Eastern.....	1925	9,398	7,738	17,136	7.1	448	2,347	1,255	39.3	296	11.2	11,022	120	45.0
	1924	9,619	6,259	15,878	8.0	1,217	2,361	1,271	40.3	267	10.2	9,241	124	38.1
Long Island .....	1925	1,848	5,510	7,358	0.9	...	812	310	23.9	67	4.8	1,256	243	39.8
	1924	1,771	4,788	6,559	0.9	68	871	351	24.3	82	5.5	1,366	262	32.8
Pennsylvania System.....	1925	204,468	91,660	296,128	10.7	12,888	1,938	920	31.1	473	23.3	12,874	122	51.9
	1924	199,508	96,197	295,705	10.3	20,111	1,879	918	31.1	448	21.5	12,101	132	47.1
Reading .....	1925	22,221	16,083	38,304	2.8	1,449	1,806	911	33.9	462	22.2	15,634	150	49.3
	1924	22,864	14,116	36,980	2.8	4,146	1,681	875	34.4	487	21.9	15,783	164	49.0
Peachontas Region:														
Chesapeake & Ohio.....	1925	28,241	11,650	39,891	3.4	726	2,537	1,372	42.7	1,386	57.0	21,067	100	74.1
	1924	25,355	13,577	38,932	6.0	834	2,380	1,323	42.1	1,181	47.6	18,013	111	71.4
Norfolk & Western.....	1925	27,301	10,009	37,310	2.7	...	2,823	1,546	45.3	1,240	44.8	20,757	133	58.7
	1924	28,940	10,272	39,212	5.7	1,684	2,447	1,293	42.5	935	36.4	16,443	153	50.6
Southern Region:														
Atlantic Coast Line.....	1925	18,818	16,899	35,717	4.1	...	1,418	595	23.0	444	28.9	3,271	115	64.6
	1924	20,126	9,839	29,965	5.0	...	1,317	547	21.8	375	26.1	2,359	123	46.4
Central of Georgia.....	1925	3,901	9,088	12,989	6.0	...	1,217	566	24.7	552	30.2	3,760	146	80.5
	1924	4,169	4,965	9,134	7.6	...	1,146	513	23.1	548	32.5	2,628	147	63.5
I. C. (inc. Y. & M. V.)....	1925	39,615	28,118	67,733	4.5	...	1,796	798	27.0	733	40.9	7,983	121	75.1
	1924	40,424	25,040	65,464	7.1	...	1,828	820	27.2	716	39.5	7,573	124	66.2
Louisville & Nashville.....	1925	38,324	20,026	58,350	14.7	75	1,314	646	33.2	682	33.5	7,940	153	98.2
	1924	40,694	19,022	59,716	15.3	105	1,285	631	32.4	575	28.4	6,866	156	82.6
Seaboard Air Line.....	1925	10,657	13,744	24,401	2.1	...	1,406	580	22.9	449	29.1	2,917	137	77.1
	1924	9,824	6,879	16,703	6.3	...	1,255	527	22.1	457	29.9	2,153	146	59.7
Southern Ry. ....	1925	37,778	23,274	61,052	4.3	...	1,307	551	22.7	462	29.4	4,127	156	57.0
	1924	38,225	21,261	59,486	5.4	...	1,240	522	22.2	395	25.0	3,433	171	47.4
Northwestern Region:														
Chic. & North Western....	1925	48,294	29,896	78,190	10.1	...	1,478	598	23.1	405	26.5	3,746	124	59.1
	1924	47,099	34,951	82,050	10.4	...	1,413	565	23.0	395	26.2	3,837	137	57.7
Chic., Milw. & St. Paul....	1925	55,655	28,064	83,719	6.4	...	1,749	769	25.3	534	32.5	3,996	132	59.5
	1924	53,397	29,895	83,292	7.7	...	1,666	753	26.3	513	29.9	3,899	138	55.2
Chic., St. P., Minn. & Om. ....	1925	3,058	9,022	12,080	11.1	...	1,093	476	22.8	449	27.1	3,144	138	60.8
	1924	3,844	11,726	15,570	8.9	1,596	1,086	505	25.2	413	21.6	3,730	141	69.9
Great Northern .....	1925	45,862	22,396	68,258	6.1	...	2,225	1,034	29.8	583	32.3	4,881	116	55.8
	1924	49,938	18,063	68,001	5.9	...	1,984	918	30.2	521	29.5	4,373	126	53.7
M., St. P. & S. Ste. M. ....	1925	20,668	9,09											

### Purchases and Stores Meeting

The 1926 annual meeting of Division VI—Purchases and Stores, American Railway Association, will be held at Atlantic City, N. J., on June 9, 10 and 11, coinciding with the first three days of the meeting of Division V—Mechanical. The headquarters of the Purchases and Stores Division will be announced later.

### St. Louis to New York in 20½ hours

A special train run by the Pennsylvania Railroad on November 15 and 16 made the trip from St. Louis, Mo., to New York City, 1,053 miles, in 20 hours, 26 minutes; or an average of about 51½ miles an hour. The train left St. Louis at 3:51 p. m., Central time, on Sunday, November 15 and arrived in New York at 1:17 p. m., Eastern time, on Monday. From Philadelphia to New York, 90 miles, the time was one hour, 18 minutes. The train consisted of a locomotive and six cars and was run for Guy L. Waggoner of Fort Worth, Texas, and a few friends, to enable him to reach the bedside of his sister, sick in New York City.

Mr. Waggoner, traveling from Fort Worth, having been delayed by a freight wreck, arrived in St. Louis too late to take the regular fast train.

Mr. Waggoner is said to have paid for this train 125 fares, or \$5,607.

The time was three hours, 34 minutes, less than that of the fastest regular train over the same route.

### Wage Statistics for August

A summary of the reports of Class I railroads to the Interstate Commerce Commission indicates that the number of railroad employees and the total compensation were greater in August, 1925, than in any month since October, 1924. The total number of employees was 1,800,219, an increase of 4,550 or 0.3 per cent over the returns for the previous month. The total compensation increased \$1,371,967 or 0.6 per cent. Compared with August last year there was an increase of 0.6 per cent, while the total compensation increased 3.2 per cent. The percentage difference be-

### OPERATING REVENUES AND OPERATING EXPENSES OF CLASS I STEAM ROADS IN THE UNITED STATES (FOR 191 STEAM ROADS, INCLUDING 16 SWITCHING AND TERMINAL COMPANIES)

Item	United States		Eastern District		Pocahontas Region		Southern Region		Western District	
	1925	1924	1925	1924	1925	1924	1925	1924	1925	1924
	1925	1924	1925	1924	1925	1924	1925	1924	1925	1924
Average number of miles operated .....	236,635.20	236,267.94	59,407.10	59,538.64	5,531.37	5,531.94	38,549.18	38,354.18	133,147.55	132,843.81
Revenues:										
Freight .....	\$419,642,584	\$399,214,083	\$171,052,086	\$166,020,026	\$20,789,526	\$16,953,894	\$55,634,011	\$48,734,185	\$172,166,961	\$167,505,978
Passenger .....	a 95,704,769	b 93,200,513	48,205,213	47,522,597	2,045,406	2,151,147	13,754,730	11,562,187	31,699,420	31,964,582
Mail .....	7,683,363	7,795,359	2,930,950	2,920,184	196,469	193,507	1,102,659	1,130,356	3,453,285	3,551,312
Express .....	12,632,122	12,406,866	6,593,074	5,203,329	277,364	293,437	1,345,111	1,565,597	4,416,573	5,344,303
All other transportation .....	17,337,756	17,051,048	9,972,644	9,713,630	181,562	217,437	942,998	1,053,569	6,240,552	6,066,412
Incidental .....	11,731,516	10,741,331	5,389,763	5,331,238	326,232	350,985	1,281,841	973,903	4,535,680	4,085,205
Joint facility—Cr. ....	1,015,976	856,529	355,983	378,856	21,871	16,192	149,226	130,215	488,896	331,266
Joint facility—Dr. ....	296,279	218,902	d 11,965	107,501	3,708	3,537	35,264	30,823	269,272	77,041
Ry. operat'g revenues .....	565,451,807	541,046,827	244,711,678	236,982,359	23,834,722	20,173,062	74,175,312	65,119,189	222,730,095	218,772,217
Expenses:										
Maintenance of way and structures .....	76,754,627	72,883,295	32,760,289	30,106,419	3,980,377	3,032,521	10,564,133	9,942,057	29,449,828	29,802,298
Mainten'ce of equip'm't .....	104,474,722	105,043,443	49,585,477	49,239,860	4,886,486	5,262,899	13,604,691	12,823,456	36,398,068	37,717,228
Traffic .....	8,951,862	8,128,076	3,300,667	3,122,961	234,741	209,349	1,560,053	1,405,678	3,856,401	3,390,088
Transportation .....	180,084,571	178,461,428	81,987,932	82,866,536	5,899,487	5,778,275	23,717,995	21,380,784	68,479,157	68,435,833
Miscellaneous operat'ns .....	4,696,303	4,525,837	2,022,324	2,097,291	89,317	79,516	538,283	370,296	2,046,379	1,978,734
General .....	14,338,608	13,845,452	6,368,941	6,070,452	455,536	476,993	1,866,425	1,778,761	5,647,706	5,519,246
Transportation for investment—Cr. ....	1,204,564	1,095,682	276,373	123,654	40,868	64,791	208,185	198,446	679,138	708,791
Ry. operat'g expenses .....	388,096,129	381,791,849	175,749,257	173,379,865	15,505,076	14,774,762	51,643,395	47,502,586	145,198,401	146,134,636
Net revenue from railway operations .....	177,355,678	159,254,978	68,962,421	63,602,494	8,329,646	5,398,360	22,531,917	17,616,603	77,531,694	72,637,581
Railway tax accruals .....	33,277,134	33,407,487	13,342,630	13,171,054	1,429,356	1,124,358	4,857,356	4,256,508	13,647,792	14,855,567
Uncollectible ry. rev's .....	151,001	113,783	91,290	50,894	3,421	2,756	15,697	14,936	40,593	45,197
Ry. operating income .....	143,927,543	125,733,708	55,528,501	50,380,546	6,896,869	4,271,186	17,658,864	13,345,159	63,843,309	57,736,817
Equip'm't rents—Dr. bal. ....	7,212,202	7,027,257	3,103,679	3,026,222	d 785,988	d 430,439	368,784	d 141,274	4,525,277	4,572,748
Joint facility rent—Dr. balance .....	2,130,425	1,688,536	1,011,374	1,032,234	82,274	85,750	106,376	92,929	930,401	477,623
Net ry. oper'g income .....	134,584,916	117,017,915	51,413,448	46,322,090	7,600,583	4,615,875	17,183,704	13,393,504	58,387,181	52,686,446
Ratio of expenses to revenues (per cent) .....	68.63	70.57	71.82	73.16	65.05	73.24	69.62	72.95	65.19	66.80
FOR NINE MONTHS ENDED WITH SEPTEMBER, 1925 AND 1924										
Average number of miles operated .....	236,641.39	236,122.12	59,462.72	59,534.39	5,512.30	5,512.89	38,520.63	38,355.55	133,145.74	132,719.29
Revenues:										
Freight .....	\$3,320,656,570	\$3,166,784,580	1,475,998,277	1,414,704,188	162,743,548	143,289,983	455,973,920	426,459,649	1,225,940,825	1,182,330,760
Passenger .....	e 796,357,242	e 824,161,238	394,731,229	402,560,263	17,334,819	18,932,901	114,376,918	111,668,139	269,914,276	290,999,935
Mail .....	71,197,823	71,656,115	27,261,149	27,401,467	1,853,109	1,776,693	10,193,200	10,151,384	31,890,365	32,326,571
Express .....	102,625,109	103,187,340	49,103,792	45,332,126	2,404,969	2,353,775	14,332,957	14,023,825	36,783,391	41,477,614
All other transportation .....	148,286,500	143,368,691	86,029,319	82,509,798	1,799,912	1,814,132	8,494,955	8,102,375	51,962,314	50,942,386
Incidental .....	93,482,181	88,749,776	45,733,662	45,109,559	3,083,610	3,058,794	10,821,816	9,521,593	33,843,093	31,059,830
Joint facility—Cr. ....	7,830,517	7,740,399	3,243,390	3,212,311	148,023	135,451	1,224,998	1,161,489	3,214,106	3,231,148
Joint facility—Dr. ....	1,974,497	1,924,058	555,122	951,843	20,669	21,544	309,346	275,033	1,089,360	675,638
Ry. operat'g revenues .....	4,538,461,445	4,403,724,081	2,081,545,696	2,019,877,869	189,347,321	171,340,185	615,109,418	580,813,421	1,652,459,010	1,631,692,606
Expenses:										
Maintenance of way and structures .....	617,500,445	601,328,929	261,661,617	246,663,034	27,504,041	25,262,149	87,558,444	82,703,435	240,776,343	247,200,311
Mainten'ce of equip'm't .....	945,067,652	948,354,663	454,458,068	452,156,688	44,227,204	43,020,471	119,091,372	119,106,042	327,291,008	334,071,462
Traffic .....	78,674,858	73,831,107	29,227,392	27,804,426	2,039,118	1,871,846	13,850,870	12,847,927	33,557,478	31,306,908
Transportation .....	1,596,363,118	1,621,256,664	750,336,456	771,928,319	52,389,767	53,215,734	211,731,215	210,089,675	581,905,680	586,022,936
Miscellaneous operat'ns .....	40,108,115	37,866,308	18,047,085	17,956,060	793,419	758,511	4,672,465	3,672,397	16,595,146	15,479,340
General .....	130,158,938	126,547,230	57,531,949	55,875,015	4,163,726	4,024,076	16,832,006	16,378,900	51,631,257	50,269,239
Transportation for investment—Cr. ....	9,133,572	9,853,888	1,467,903	1,387,720	477,715	314,830	1,634,096	1,211,918	5,553,858	6,939,420
Ry. operat'g expenses .....	3,398,739,554	3,399,831,013	1,569,794,664	1,570,995,822	130,639,560	127,837,957	452,102,276	443,586,458	1,246,203,054	1,257,410,776
Net revenue from railway operations .....	1,139,721,891	1,003,893,068	511,751,632	448,882,047	58,707,761	43,502,228	163,007,142	137,226,963	406,255,956	374,281,830
Railway tax accruals .....	265,770,377	253,426,319	110,810,586	103,855,190	11,440,313	10,693,290	36,425,188	31,643,827	107,094,290	107,234,012
Uncollectible ry. rev's .....	1,307,178	1,522,893	644,608	703,416	46,163	34,946	165,030	147,922	451,377	636,609
Ry. operating income .....	872,644,336	748,943,856	400,295,838	344,323,441	47,221,285	32,773,992	126,416,924	105,435,214	298,710,289	266,411,209
Equip'm't rents—Dr. bal. ....	57,808,278	53,630,056	31,699,219	33,453,894	d 4,556,028	d 3,016,879	6,012,841	3,135,967	24,552,246	20,057,074
Joint facility rent—Dr. balance .....	17,488,535	15,870,682	8,499,095	8,172,663	811,743	848,408	1,012,217	936,771	7,165,480	5,912,840
Net ry. oper'g income .....	797,347,523	679,443,118	360,097,524	302,696,884	50,865,570	34,942,463	119,391,866	101,362,476	266,992,563	240,441,295
Ratio of expenses to revenues (per cent) .....	74.89	77.20	75.41	77.78	68.99	74.61	73.50	76.37	75.41	77.66

a Includes \$3,852,280 sleeping and parlor car surcharge. b Includes \$3,395,983 sleeping and parlor car surcharge. c Includes \$29,561,544 sleeping and parlor car surcharge. d Deficit or other reverse items. e Includes \$27,913,944 sleeping and parlor car surcharge.

Compiled by the Bureau of Statistics, Interstate Commerce Commission. Subject to revision.



tween the employment and compensation is due to an increase in the number of hours worked per employee coupled with an increase of 0.6 cents in the straight time hourly earnings and 1.5 cents in the overtime earnings.

The number of employees at the middle of the month was as follows:

Group	August 1925	Increase over	
		July 1925	August 1924
Executives, officials, and staff assistants...	16,472	25	204
Professional, clerical, and general.....	282,941	475	1,749
Maintenance of way and structures.....	431,822	305	2,905
Maintenance of equipment and stores....	513,635	(d) 4,286	(d) 6,803
Transportation (other than train, etc.)...	208,510	(d) 363	1,075
Transportation (yardmasters, etc.).....	24,036	191	53
Transportation (train and engine service)	322,803	8,203	12,170
Total.....	1,800,219	4,550	11,247

(d) Decrease.

### Great Northern Completes Electrification Plan

The Great Northern has completed tentative plans for a \$10,000,000 water power development in the vicinity of Lake Chelan in north central Washington. The proposed facilities provide for the development of 75,000 hp. to be used in the projected electrification of the Great Northern's line over the Cascade mountains and will enable the irrigation of 80,000 acres of land in the vicinity. In connection with its electrification plan, the Great Northern contemplates the construction of an 8½-mile tunnel through the Cascade mountains to replace the present shorter tunnel and snow sheds.

Through a subsidiary, the Chelan Electric Company, the Great Northern has executed a contract with the Washington Water Power Company for the construction and operation of a dam and power plant at Lake Chelan. It is intended that the power generated at this plant shall be used eventually in the operation of trains over the Cascade mountains, but it is recognized that this project will require years for completion.

The proposed new tunnel through the Cascades, which would be 8½ miles long, would replace a 17-mile section of the present line. The maximum grade would be considerably reduced and a number of snow sheds eliminated. The present plans for the tunnel call for an eastern entrance at Berne, Wash., and a western entrance near Scenic.

### Report on Newark (Ga.) Collision

W. P. Borland, director of the Bureau of Safety, Interstate Commerce Commission has made a report on the collision of passenger trains No. 180 and No. 185, on the Atlantic Coast Line, near Newark, Ga., on September 27, when one passenger, both enginemen, one baggage man and one train porter were killed and 52 passengers and six employees were injured. Both trains were running at full speed and both locomotives were overturned and wrecked. The first two coaches of No. 185 were destroyed. All of the cars in No. 180 were of steel and sustained comparatively little damage.

By train order No. 45, the eastbound train, No. 180, should have stopped at Newark to meet the westbound; but the order was overlooked and the collision occurred a short distance east of Newark, at a point where the opposing enginemen had a view ahead of only about 800 ft. Engineman McGee, of No. 180, was killed; the conductor and the baggage master, the only other persons on the train who knew about the order were so engrossed in their work that neither of them knew when their train passed the meeting point. The flagman was held not responsible, as the conductor had not told him about the meet order. The practice of conveying information to the flagman by word of mouth, when the conductor reaches the rear end of the train, seems to have had official sanction. The fireman of No. 180, colored, said that when he first began running with Engineman McGee, he had asked about train orders and had been rebuffed, the engineman replying that "when he had orders he would tell him." Not wishing to displease the engineman the fireman since then had refrained from making inquiries about orders; sometimes the engineman told him about them and at other times he did not.

Engineman McGee had been employed as such for 43 years and had a clear record, and the fireman had a clear record of 23 years' service. The report, in its conclusion, says: "This accident calls attention to the practice which exists with some enginemen, where they have colored firemen, of not showing such fire-

men the orders which they have received, or making them acquainted with the contents of such orders. A similar situation has been found to exist in previous accident investigations.

### Definition of "Deficit" for Short Lines Reversed

The Interstate Commerce Commission has reversed itself and has overruled its former finding as to the meaning of the word "deficit" as used in section 204 of the Transportation Act, which provides for the reimbursement of deficits incurred during the period of federal control by short line railroads which were taken under federal control and then relinquished to private operation. On February 9, 1922, the commission held that the word "deficit" as thus used meant a deficiency in income under private operation as compared with the average income for corresponding portions of the "test period." In its new decision, in Finance Docket No. 2500, Deficit Status of Bingham & Garfield Railway, the commission holds that the word should be given its ordinary meaning of an excess of operating expenses over revenues, computed as provided in section 204; and it has dismissed the claim of the Bingham & Garfield for \$1,522,424 by way of reimbursement and also the claims of the Ray & Gila Valley and Nevada Northern. Commissioners Esch, Campbell, Lewis and Cox dissented.

At the time the former ruling was made, the report says, the commission had before it applications of carriers whose net railway operating incomes for the portions of the period of federal control during which their lines were privately operated were very meager, but at this time it had before it applications involving about \$4,000,000 including some made by carriers whose net incomes were "so large that we think they should be regarded by the carriers' stockholders as very satisfactory."

### Harriman Medal to Union Pacific

The E. H. Harriman gold medal for the best record in accident prevention among American railroads for the year 1924—offered through the American Museum of Safety by Mrs. Harriman—has been awarded to the Union Pacific System by the unanimous vote of the committee of award. Honorable mention was made of the Delaware & Hudson and of the Duluth, Missabe & Northern. A silver replica of the medal is awarded to the Western division of the Chicago Great Western; and the bronze medal offered to the employee individually most conspicuous during the last year was awarded to Joseph Kragoskow, assistant foreman in the Omaha shops of the Union Pacific, who in 56 years of continuous railroad service has never received an accidental injury, and who more than a quarter of a century before the origin of the "safety movement" had invented several very effective accident prevention devices.

The committee voted honorable mention to H. E. Butler, passenger train conductor of the Nashville, Chattanooga & St. Louis, who in more than 40 years of railroad work has never been involved in an accident himself nor in any way responsible for accidental injury to another.

The committee consisted of Arthur Williams, vice-president of the New York Edison Company; R. H. Aishton, president, American Railway Association; Samuel O. Dunn, editor, *Railway Age*; John J. Esch, Interstate Commerce Commissioner, and Julius H. Parmelee, director, Bureau of Railway Economics.

The Union Pacific was one of four systems whose data, submitted to the committee, showed not a single passenger killed in train accidents during 1924, and industrial accidents on its lines were responsible for only seven deaths and 552 injuries in a total of more than 112,000,000 man hours of work. The medals will be awarded at a special meeting in New York in December, when officers of the railroads and the individual employees selected by the committee of award will be the guests of the American Museum of Safety.

### N. Y. C. Authorized to Operate with Electric and Diesel Electric Locomotives in New York

The New York Public Service Commission has approved the plans of the New York Central for the electrification of its line from Spuyten Duyvil to St. Johns Park along the west side of Manhattan island, New York City. The plans provide for the electrification of that portion from Spuyten Duyvil southerly to Seventy-second street in the same manner as the present method employed on the electrical zone of the railroad. For the remainder of the section southerly from Seventy-second street, the

company proposes to use Diesel electric locomotives. The plans proposed comply with the Kaufman act which makes electrification obligatory in New York City and makes it possible for the railroad to begin the work at once and not wait for the solution of the grade crossing problem south of Seventy-second street. A memorandum of the chief engineer of the Public Service Commission says:

"The electrification north of Seventy-second street will not in any way interfere with the proposed elimination of grade crossings. These may be carried on as they have been in the past. South of Seventy-second street and in the Sixtieth street yard, electrification may not be undertaken at this time. In the case of the Sixtieth street yard as well as in other yards having an extensive number of tracks, the third rail system is practically impossible in that it incorporates an element of danger to those employees who necessarily are required to work in these yards. An overhead system may be installed and may be operated satisfactorily.

"The Diesel electric locomotive, however, which the company proposes to operate has none of the objectionable features of the steam locomotive; it is substantially noiseless and its movements are virtually the same as those of an electric locomotive of the same capacity. It has one other feature which in my opinion has an advantage over the overhead system of contact or the third rail. In the case of the latter there are frequent momentary discontinuances which draw arcs causing vivid flashes. These are a source of annoyance and in my opinion would be objectionable to those living along Riverside drive. This results where the contact shoe jumps from one conductor to another and such intervals would be frequently necessary in the third rail system.

"On the Eleventh avenue line south of Sixtieth street, nothing may be done in so far as the complete electrification is concerned until the grade crossing problem has been solved. On the other hand the steam locomotives with their objectionable features may be promptly and effectively eliminated by the substitution of the Diesel electric locomotives."

#### Railroad Owners' Association

##### Asks Reduction in Interest Rate

A bill to provide for a reduction in the rate of interest charged by the government on the indebtedness to it of railroads that were under federal control is to be introduced in the coming session of Congress, according to a memorandum addressed to members of Congress by J. D. Shatford, chairman of the Railroad Owners' Association, urging support for the bill. Mr. Shatford contends that the indebtedness was created as a result of the government's operation of the properties and that it is not equitable for the government now to make a profit by charging the roads a higher rate of interest than it has to pay for money; that the roads should be entitled to the same low rates of interest that have been fixed on the indebtedness of foreign nations to this government on advances also made for war purposes.

"Although the government has been making a profit of 1½ per cent, more or less, per annum, on the amount loaned to the roads," he says, "the stockholders of three of the main debtors of the government, first, the New Haven, have not received a penny in interest on their investment in this road since 1913; second, those of the Boston & Maine have not received any dividends since 1913 on the common stock, though during a period of eighteen months, from January 1, 1919, to September, 1920, a rate of four per cent was paid on the preferred; and third, those of the Chicago, Milwaukee & St. Paul have not received any dividends since 1917, or since the roads were taken over by the government. Indeed, the latter company has been thrown into receivership because it has been unable to earn its fixed charges, due to the unbalanced rate structure in the territory through which it runs, owing to excessive advances in the cost of labor, materials and supplies. This same condition applies to the other roads, such as the New Haven, and the Boston & Maine, above referred to.

"When the railroads were taken over pursuant to the proclamation of President Wilson in the last days of 1917, he used this reassuring language: 'Investors in railway securities may rest assured that their rights and interests will be as scrupulously looked after by the government as they could be by the directors of the several railway systems.' If the railroads had been operated by the government as efficiently and economically and at the same compensatory rates as in the three years preceding

government control there would have been no need to tax the general public \$1,674,500,000 to meet the rental payments agreed to by the government at the time of the taking. If they had been returned with the same earning capacity as when taken there would have been no need for the government to lend them money to bridge the succeeding years of deficits and depleted revenues. Here are the exact figures to prove the foregoing proposition. On March 31, 1925, the principal railroads owed the government \$307,827,886. If these railroads had been returned to their owners and had been able to continue with the same operating ratio as they averaged for the three years preceding government control they would have had, to meet this indebtedness, an increase of net income during the four years following their return of \$718,632,369, an excess over the amount owed the government of \$410,804,483. To put it briefly and bluntly, if the government had kept the promise of President Wilson the railroads with few exceptions would not only now not be in debt to the government, but would have been able to take care of all necessary expenditures and been richer by \$410,804,483. Upon this showing it seems too plain for argument that the government should at least not force its debtors to pay as interest upon a debt thus imposed a greater rate of interest than charged the foreign nations in settlement. It certainly cannot on any ethical standard continue to ask a profit from an indebtedness which it never should have compelled the railroads to incur."

#### Space Assigned for Railway Appliances Exhibit

The board of directors of the National Railway Appliances Association at a meeting in Chicago on November 9 assigned space for the annual exhibit of the association to be held in the Coliseum, Chicago, on March 8-11, to 156 companies. The exhibition will be held at the time of the 27th annual convention of the American Railway Engineering Association.

The names of the companies assigned space, as recorded by the secretary, C. W. Kelly, 825 South Wabash avenue, Chicago, are as follows:

Adams Motor & Manufacturing Co., Chicago.  
Adams & Westlake Co., Chicago.  
Air Reduction Sales Company, New York.  
American Bolt Corporation (Boss Nut Division), Chicago.  
American Car & Foundry Co., Chicago.  
American Casting Company, Birmingham, Ala.  
American Chain Company, Bridgeport, Conn.  
American Hoist & Derrick Co., St. Paul, Minn.  
American Malleable Castings Association, Cleveland, O.  
American Railway Hydrant & Valve Co., Stapleton, S. I., N. Y.  
American Steel & Wire Co., Chicago.  
American Valve & Meter Co., Cincinnati, O.  
Anchor Company, Milwaukee, Wis.  
Arcco Anti-Rail Creeping Company, Inc., Owego, N. Y.  
Asbestos Shingle Slate & Sheathing Co., Ambler, Pa.  
Baker R. & L. Co., Cleveland, O.  
Balkwill Manganese Crossing Co., Cleveland, O.  
Barber Asphalt Company, Philadelphia, Pa.  
Bethlehem Steel Company, Bethlehem, Pa.  
Blaw-Knox Company, Pittsburgh, Pa.  
Brown Rail Loader Company, Boston, Mass.  
Buda Company, Harvey, Ill.  
Carbic Manufacturing Company, Duluth, Minn.  
Carnegie Steel Company, Pittsburgh, Pa.  
Celotex Company, Chicago.  
Carter Bloxond Flooring Company, Kansas City, Mo.  
Central Electric Company, Chicago.  
Chicago Flag & Decorating Co., Chicago.  
Challenge Company, Batavia, Ill.  
Chausse Oil Burner Company, Elkhart, Ind.  
Chicago Bridge & Iron Works, Chicago.  
Chicago Malleable Castings Company, West Pullman, Ill.  
Chicago Pneumatic Tool Company, New York.  
Chicago Railway Signal & Supply Co., Chicago.  
Chipman Chemical Company, Bound Brook, N. J.  
Clark Car Company, Pittsburgh, Pa.  
Cleveland Frog & Crossing Co., Cleveland, O.  
Cleveland Railway Supply Company, Cleveland, O.  
Cook, A. D., Lawrenceburg, Ind.  
Concrete Surfacing Machinery Company, Cincinnati, O.  
Copperweld Steel Company, Chicago.  
Crerar Adams Company, Chicago.  
Cullen Friestedt Company, Chicago.  
Dearborn Chemical Company, Chicago.  
Detroit Graphite Company, Detroit, Mich.  
Dickinson, Paul, Inc., Chicago.  
Dilworth Porter & Co., Inc., Pittsburgh, Pa.  
Duff Manufacturing Company, Pittsburgh, Pa.  
Edison, Thos., Inc., Primary Battery Division, Bloomfield, N. J.  
Edison Storage Battery Company, Orange, N. J.  
Electric Storage Battery Company, Philadelphia, Pa.  
Electric Tamper & Equipment Co., Chicago.  
Elwell Parker Company, Cleveland, Ohio.  
Engineering News Record, New York.



Euclid Electric & Manufacturing Co., Euclid, O.  
 Fairbanks, Morse & Co., Chicago.  
 Fairmont Railway Motors, Inc., Fairmont, Minn.  
 Fleming, J. R., & Son Co., Scranton, Pa.  
 Frog Switch & Manufacturing Co., Carlisle, Pa.  
 General Electric Company, Schenectady, N. Y.  
 General Railway Signal Company, Rochester, N. Y.  
 Graver Corporation, East Chicago, Ind.  
 Grip Nut Company, Chicago.  
 Hayes Track Appliances Company, Richmond, Ind.  
 Hazard Manufacturing Company, Wilkes-Barre, Pa.  
 Headley Good Roads Company, Philadelphia, Pa.  
 Hubbard & Co., Pittsburgh, Pa.  
 Handlan-Buck Manufacturing Company, St. Louis, Mo.  
 Illinois Steel Company, Chicago.  
 Ingersoll-Rand Company, New York.  
 International Signal Company, New York.  
 Jaeger Machine Company, Columbus, O.  
 Johns-Manville, Inc., New York.  
 Jordan, O. F., Co., East Chicago, Ind.  
 Kalamazoo Railway Supply Company, Kalamazoo, Mich.  
 Kelly-Derby Company, Chicago.  
 Kentucky Rock Asphalt Company, Inc., Louisville, Ky.  
 Kerite Insulated Wire & Cable Co., New York.  
 Keystone Grinder & Manufacturing Co., Pittsburgh, Pa.  
 Keystone Steel & Wire Co., Peoria, Ill.  
 Lehon Company, Chicago.  
 Locomotive Finished Material Company, Atchison, Kan.  
 Leraia Steel Company, Johnstown, Pa.  
 Louisville Frog & Crossing Co., Louisville, Ill.  
 Lufkin Rule Company, Saginaw, Mich.  
 Lundie Engineering Corporation, New York.  
 Lundy, E. A., Co., Pittsburgh, Pa.  
 McRae's Blue Book Company, Chicago.  
 Magnetic Signal Company, Los Angeles, Cal.  
 Maintenance Equipment Company, Chicago.  
 Massey Concrete Products Corporation, Chicago.  
 Mechanical Manufacturing Company, Chicago.  
 Metal & Thermit Corp., Chicago.  
 Milburn, Alexander, Company, Baltimore, Md.  
 Miller Train Control Corporation, Danville, Ill.  
 Modern Frog & Crossing Works, Chicago.  
 Mudge & Co., Chicago.  
 Murdoch Manufacturing & Supply Co., Cincinnati, O.  
 National Carbon Company, Inc., Cleveland, O.  
 National Lead Company, New York.  
 National Lock Washer Company, Newark, N. J.  
 National Malleable Castings Company, Cleveland, O.  
 National Safety Appliance Company, Chicago.  
 National Vulcanized Fibre Company, Pittsburgh, Pa.  
 Nelson, B. F., Company, Minneapolis, Minn.  
 Nichols, Geo. P., & Bros., Chicago.  
 Northwestern Motor Company, Eau Claire, Wis.  
 Ogle Construction Company, Chicago.  
 Ohio Brass Company, Mansfield, O.  
 Okonite Company, Passaic, N. J.  
 Okonite-Callender Cable Company, Inc., Passaic, N. J.  
 Oxweld Railroad Service Company, Chicago.  
 P. & M. Co., Chicago.  
 Page Steel & Wire Co., Bridgeport, Conn.  
 Patterson, W. W., Company, Pittsburgh, Pa.  
 Pittsburgh-Des Moines Steel Company, Chicago.  
 Pocket List of Railroad Officials, New York.  
 Positive Rail Anchor Company, Marion, Ind.  
 Pyle-National Company, Chicago.  
 Q & C Co., New York.  
 Racine Tool & Machine Co., Racine, Wis.  
 Rail Joint Company, New York.  
 Railroad Accessories Corporation, New York.  
 Railroad Supply Company, Chicago.  
 Railway Purchases and Stores, Chicago.  
 Railway Review, Chicago.  
 Ramapo-Ajax Company, New York.  
 Reade Manufacturing Company, Jersey City, N. J.  
 Reliance Manufacturing Company, Massillon, O.  
 Richards-Wilcox Company, Aurora, Ill.  
 Roberts & Schaefer Co., Chicago.  
 Roberts, Geo. J., Co., Dayton, O.  
 Robertson, H. H., Company, Pittsburgh, Pa.  
 Robertson, Wm., & Co., Chicago.  
 Sellers Manufacturing Company, Chicago.  
 Sherwin Williams Company, Cleveland, O.  
 Signal Accessories Corporation, Utica, N. Y.  
 Simmons-Boardman Publishing Company, New York.  
 Sinning Track Liner Company, Ramsey, Ill.  
 Skelton Shovel Company, St. Louis, Mo.  
 Snow, T. W., Construction Company, Chicago.  
 Southern Signal Company, Louisville, Ky.  
 Templeton, Kenly Company, Ltd., Chicago.  
 Torchweld Equipment Company, Chicago.  
 Union Switch & Signal Co., Swissvale, Pa.  
 U. S. Wind Engine & Pump Co., Batavia, Ill.  
 Verona Tool Works, Pittsburgh, Pa.  
 Warren Tool & Forge Company, Warren, O.  
 Waterbury Battery Company, New York.  
 Wharton, Wm., Jr., & Co., Inc., Easton, Pa.  
 Western Wheeled Scraper Company, Aurora, Ill.  
 Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa.  
 Wood Conversion Company, Cloquet, Minn.  
 Wood Shovel & Tool Co., Piqua, O.  
 Woolery Machine Company, Minneapolis, Minn.  
 Wyoming Shovel Works, Wyoming, Pa.

## Traffic News

The annual meeting of the Northwestern Regional Advisory Board will be held at Minneapolis, Minn., on January 26.

The Great Northern, Northern Pacific and Oregon-Washington Railroad & Navigation Company have applied to the Interstate Commerce Commission for authority to extend from Olequa to Longview Junction, Wash., 21 miles, via the Longview, Portland & Northern, the joint passenger service which has been operated between Puget Sound and Portland, Ore., under authority of the commission since April 1, 1925.

At Brunswick, Ga., heavy shipments of freight are arriving from the north by rail and are transferred there to automobile trucks or boats, to be taken to Florida, thus getting around the railroad embargo. A Brunswick transfer company announces a regular freight schedule between that city and West Palm Beach. The freight thus moved during the past week or two has included 35 carloads of new automobiles.

The freight rate on the principal iron and steel articles from the Atlantic Seaboard by water to Pacific Coast points has been reduced from 40 cents per 100 lb. to 30 cents. This reduction was announced by the Conference Lines on November 16, to go into effect at once. Eastbound rates on numerous important commodities were recently the subject of a conference of the steamship lines at which it was decided to make an advance of about 10 per cent.

### Average Car Mileage and Car Load

The average daily mileage of freight cars in September was the highest for any September on record, according to reports filed by the carriers with the Bureau of Railway Economics. It was 30.7 miles per car per day, which has been equaled only twice, in October, 1923, and October, 1924. Compared with the same month last year, the average for September was an increase of 1.8 miles, while it also was an increase of 1.5 miles over the daily average for September, 1923.

The average load per freight car in September was 26.8 tons, a decrease of one-fifth of a ton under that for September last year.

### Steam Roads to Be Taken Over by Electric Line

The Holyoke (Mass.) Street Railway Company announces that it is making arrangements to take over the operation of the Easthampton branch of the Boston & Maine, about three miles long, and the Williamsburg branch of the New York, New Haven & Hartford, six miles in length. On both of these branches passenger train service has long since been discontinued because of the falling off in traffic. The street railway company proposes to transport freight as well as passengers. These plans, if carried out, will involve the discontinuance of trolley car service on the highways which are roughly parallel to the railroad lines. Both of these street lines are crooked and operation is subject to difficulties because of numerous crossings. From Holyoke, northward to the junction with the Easthampton branch, the street railway has a line parallel to the Boston & Maine and it is proposed to run cars through between Holyoke and Easthampton.

### September Ton Miles Break Record

Freight traffic in September was the greatest for any September on record, according to reports compiled by the Bureau of Railway Economics, amounting to 41,322,180,000 net ton miles, which exceeded by 393,462,000 net ton miles or one per cent the previous high record for that month established in September, 1920. This also was an increase of 5.8 per cent as compared with September last year and an increase of 4.7 per cent over the same month in 1923.

In the Eastern district the increase in September was 5.9 per cent over the total for the same month last year; in the Southern district 16.6 per cent, and in the Western district 2.3 per cent.

For the first nine months in 1925, the total was 333,530,878,000 net ton miles, an increase of 6.4 per cent as compared with 1924,

but a decrease of three per cent under that of the same period in 1923. In the Eastern district the increase in the nine months was 7.1 per cent, in the Southern district 9.9 per cent, and in the Western 4.1 per cent.

### Grain Embargo on Vancouver

Severe weather has delayed threshing of grain in western Canada and caused a congestion on the railways, which has compelled the railways to impose an embargo on grain to Vancouver. D. C. Coleman, vice-president of the western lines of the Canadian Pacific, issued the following statement in Vancouver last week:

"The railway companies have been compelled to issue an order in Alberta embargoing the loading of grain to Vancouver for a few days. This action is caused entirely by the condition of the grain offered for transportation. Due to the deplorable weather we had on the prairies in the month of October which prevented threshing, the grain has deteriorated in quality and a very large percentage is being graded as damp and tough, which means that drying and treatment is necessary before it can be loaded for export.

"Inasmuch as we have a very large storage capacity in line elevators in Alberta and Saskatchewan, it is not likely that this temporary condition will involve the diversion of any grain, which otherwise would have gone to Vancouver, to other routes."

### National Industrial Traffic League Meeting

The annual meeting of the National Industrial Traffic League was held at Hotel Sherman, Chicago, on November 18 and 19. The League expressed itself as being opposed to compulsory railroad consolidation. It was recommended that the theory that rates will be reduced through consolidations be opposed, on the ground that it is propaganda disseminated by speculators. The Howell-Barkley bill also was considered, and a recommendation was made that the League be ready to oppose the bill should it again become necessary to do so.

Courses in transportation at universities, especially those covering traffic, were approved by the meeting, insofar as they afford a general understanding of traffic matters; and the membership agreed to co-operate with universities and schools.

Consideration was also given a plan for co-operative rate making, under which shippers and railroad representatives would get together and iron out differences in opinion.

In considering the jurisdiction of the Interstate Commerce Commission over water rates two opposing views were presented by members. The minority were in favor of giving the commission jurisdiction over such rates while the majority objected to such regulation of port to port rates, declaring that if the water carriers were able to transport merchandise at rates lower than the rail carriers they were entitled to do so.

### Fluctuations in Prices of Oranges

Price fluctuations growing out of the marketing of oranges are due principally to economic factors and not to freight rates, according to a study completed by the Bureau of Railway Economics as to the effect of freight rates on prices paid for oranges both to the grower, the wholesale dealer and the consumer. The study covers the period from July, 1924, to April, 1925, or practically the entire 1924-1925 season and is based upon detailed reports obtained from both growers and buyers of oranges. Orange shipments from California since 1918 have increased 177 per cent and from Florida 158 per cent.

"It appears," said the report, "that shipments from California are more evenly distributed throughout the year than those from Florida. The heaviest movements of California fruit occurred during the four months from March to June, inclusive, and amounted to 46 per cent of the year's total. Florida shipments were confined to nine months, the heaviest shipments occurring in the five months from November to March, inclusive. Fluctuations in prices in the wholesale market occur from sale to sale and from hour to hour, clearly indicating that factors other than freight rates are the controlling influences in establishing prices."

In respect to retail prices, the rates per box to the retailer in New York from November 5, 1924, to April 29, 1925, for Florida oranges were from \$5 to \$15.75 per box. The spread in prices alone was more than nine times the freight rate from Lakeland, Florida. California oranges also showed spreads in retail prices equal to several times the freight rate.

### Transportation Conditions in

### Florida Show Improvement

Following a meeting of representatives of all Florida railroads, called by M. J. Gormley, Chairman, Car Service Division, American Railway Association, held at Jacksonville on November 17 and 18, the following statement was issued regarding the improvement in the freight congestion situation:

"Reports from the railroads show that for the past four months there has been an increase in movement of freight traffic into Florida on all lines of approximately 100 per cent over the same four months of last year.

"That approximately seventy-five million dollars was being spent for additional facilities, including new main lines classification yards, unloading tracks, passing tracks, motive power and general equipment to give more adequate transportation for the enormously increased traffic.

"The embargo which has been in effect for a considerable period of time on the Florida East Coast Railway in addition to approximately 120 miles of new second main line put into service on that road has enabled them to make very satisfactory reduction in the accumulation held for them by their connections north of Jacksonville, and that accumulation will within a few days be entirely cleaned up. That line generally is in better condition for the movement of traffic than it has been at any time during the past six months. They will soon be in a position to issue a reasonable number of permits for the movement of general freight to Florida in addition to traffic now moving that is exempted from the embargo. This will be gradually increased as the operating conditions warrant. It is believed that within the near future it will be possible for the Florida East Coast to move traffic to meet the immediate requirements. Other factors bearing materially upon the Florida East Coast situation are the completion of large classification yards at Jacksonville and Miami; also the completion of the double track bridge over the St. Johns River, Jacksonville, which will go into operation within the next week.

"The Florida state-wide embargo issued by the other Florida lines October 29 has not been in effect a sufficient length of time to materially reduce the accumulation for points on the other Florida lines, but it is the opinion that the larger part of the traffic loaded prior to the embargo has now moved up to these lines and their immediate connections and the peak has passed. It is believed that it will soon be possible to issue permits and continue this in increasing volume until freight for immediate requirements will be more nearly met than at any time in the past several months. It will not be possible to issue permits for the movement of sand, clay, rock and gravel prior to December 1 and the reduction made in the accumulation of traffic will have to govern as to what can be done in the movement of these materials after that date. With the reduction of the accumulation and the issuance of permits in increasing volume the interests of the state of Florida, receivers of traffic and the railroads generally may best be served by the applicants for permits curtailing their requests to immediate requirements and making no attempt to secure permits for adding to stocks not immediately required.

"Traffic has never been moved more promptly by the railroads of the country as a whole outside of the congested Florida territory and with the cleaning up of the accumulation for Florida the permitted traffic will move up very promptly to the Florida lines, making unnecessary the laying in of stocks in advance of actual immediate requirements.

"The railroads appreciate the patience shown by the Florida people in the problems of the railroads in moving a greatly increased traffic, and they are doing everything in their power to furnish the best possible transportation for the state and with particular attention to the citrus and vegetable movement.

"One railroad reported that in order to help out the situation and make more transportation available they have arranged for the movement of their locomotive fuel supply from the north by water to connections with their line south of the congested gateways.

"Additional main lines and second main tracks are constantly going into service as construction is completed on all railroads in the state to more adequately meet the rapidly increasing demands for transportation."

Commissioner Frank McManamy and W. P. Bartel, director of the Bureau of Service of the Interstate Commerce Commission, have been in Florida this week investigating the situation.



## Commission and Court News

### Interstate Commerce Commission

The Virginia Coal Operators' Association has filed a petition with the Interstate Commerce Commission requesting that in view of the anthracite shortage it amend its order of July 22 last in the coal rate investigation by making it applicable to all sizes and grades of bituminous instead of to low-volatile coal only. The association also requested that mines located in Norfolk & Western Group 4 should be included and that the Norfolk & Western and connecting carriers be required, as temporary relief, to establish through routes and such reasonable joint rates as the commission may prescribe on coke as well as on coal from all shipping points in N. & W. Group 4 to Middle Atlantic and New England points.

### State Commissions

#### N. Y. C. to Abandon Stations

The New York State Public Service Commission has granted the petition of the New York Central for permission to discontinue passenger train service between Suspension Bridge and Lewiston and for permission to discontinue Lewiston as a passenger station.

### Highway Crossing Stop Orders

#### Issued in Louisiana

The Public Service Commission of Louisiana, investigating highway crossing conditions in that state, has found two crossings where the highway travel is extremely heavy and the railroad traffic extremely light; and has issued orders (on November 10) calling for changes to relieve automobile traffic.

Order No. 368, referring to a crossing on the Gulf Coast Lines near Crowley, says that on this state highway, known as the Old Spanish Trail, more than 2,000 motor vehicles pass over the railroad each 24 hours; and under act No. 12, of the laws of 1924, all such vehicles must be stopped before crossing. Under this condition, the commissioners think that the railroad should either station flagmen at the crossing or should reduce the speed of all trains to five miles an hour and send a man ahead over the crossing; and the order requires this.

The order, presumably, contemplates keeping crossing watchmen on duty 24 hours a day. Apparently, the placing of the flagman suspends the strict requirements of the stop law.

Order No. 369 applies to the Texas & Pacific, near Rayne, a few miles from Crowley, at a crossing of the same highway; and the requirements are the same.

According to the Official Guide, each of these crossings is used by the railroad only to the extent of one mixed train each way each day.

### Court News

#### Commission's Jurisdiction to Fix

##### Rates by Rail and Water

The federal district court for northern Texas holds that the Interstate Commerce Commission has jurisdiction to fix through joint rates for carriage partly by rail and partly by water. If the commission's order is neither arbitrary nor unreasonable, the courts have no power to interfere with it. The order prescribed a maximum rate on cotton from Oklahoma to New England, and allowed the carriers, rail and water and rail, water, and rail, to fix their own rate 4 cents under such maximum, or as much lower as they might wish. It is held that the rail and water rate was not related to the all rail rate in such a way as to make the order illegal. To give the commission authority to fix a through rate, it is not necessary that the water carrier be controlled by a rail carrier. —Rock Island v. United States, 6 Fed. (2d) 888.

## Foreign Railway News

### Argentine Railway Electrification

Formal application has been made to the Argentine federal government for permission to electrify the tracks of the Central Argentine Railway from Retiro (Buenos Aires) to Villa Ballester and Tigre, via Coghlan, according to Modern Transport (London). The line, which runs northwest for about 25 miles, carries considerable traffic between the capital and a number of small towns, some of which, although but recently established, are rapidly extending their industries.

### Government Control Proposed for Rhodesian Railways

Brigadier General Hammond of the British army, who was commissioned to make a report on the Rhodesian Railways, has issued his report which recommends that, after adequate deductions have been made for operating expenses and a fair return on the investment, three-fourths of the earnings remaining be applied in reducing rates, allowing the private companies to retain one-fourth, according to the Times (London) Trade Supplement. He found the rates charged, generally speaking, not excessive, but suggested some places where reductions might be made under the basis he proposed. He recommended the improvement of the route to the sea via Beira rather than the building of a new line to another port. The low capital cost of the lines in existence —£6,896 per mile as against £10,327 in South Africa—was noticed and the private companies were acquitted of the charge that they have "watered" their stocks.

### Miscellaneous

The Bureau of Foreign and Domestic Commerce has received the following reports from its agents abroad:

American firms are underbidding Germans on locomotives for Brazil with the result that an order for 11 locomotives for the Sorocabana Railway and another for 6 for the Oeste de Minas (government-owned), have been secured by an American company.

The Western Australian government has placed an order for 10 locomotives and 150 cars with the Midland Junction Workshops, Western Australia. The estimated cost of the locomotives is £120,000 and of the cars £33,750. As far as possible materials are being obtained in Australia.

The largest railway locomotive in Australia will be built by the Victorian Railways at the Newport, Victoria, workshops. The engine is to be of the three-cylinder Pacific type, and is expected to be ready by the end of next year. It is said that the locomotive will have a tractive power of 40,000 lb.

The linking up of the Burmese and Siamese railways is being considered by a conference of representatives of the two countries. When this is accomplished and the railways of French Indo-China link up with the Siamese railways now being built to the Indo-China frontier, there will be through railway service between Mandalay and Rangoon and Saigon.

Direct freight service between France, Luxembourg, Belgium and Rumania was agreed upon recently. Direct freight service between France and Rumania is scheduled to begin January 1, 1926.

The Pacific Railroad of Costa Rica may build a new bridge over the Rio Barranca, as the existing structure is constantly damaged by heavy rains, and a modern steel bridge is needed. It is understood that a loan of \$300,000 for this work is being negotiated in New York.

Bids for the construction in India of 5,629 broad gage and 910 meter gage cars have been invited by the Indian Railway Board, and are an indication of the extent to which the Board is supporting Indian industry.

The gross receipts of the Belgian Railways increased 427,790,885 francs from 1,270,272,495 francs in 1923 to 1,698,063,380 francs in 1924. Net receipts increased 420,443,628 francs, a gain of 33 per cent.

## Equipment and Supplies

### Locomotives

THE WABASH is inquiring for 25 eight-wheel switching locomotives.

THE NORFOLK SOUTHERN is inquiring for 5 consolidation locomotives.

THE DETROIT TERMINAL is inquiring for 3 eight-wheel switching locomotives.

THE MISSOURI PACIFIC has authorized the construction of 15 switching locomotives in its own shops.

THE GUAYAQUIL & QUITO has ordered two consolidation locomotives from the Baldwin Locomotive Works.

THE DENVER & RIO GRANDE WESTERN has ordered 10 Mountain type locomotives from the Baldwin Locomotive Works. This road was reported in the *Railway Age* of October 3 as contemplating the purchase of 10 locomotives.

### Freight Cars

THE ANACONDA COPPER COMPANY is inquiring for 21 air dump cars.

THE PAULISTA RAILWAY is inquiring through the car builders for 150 flat cars.

THE NEW YORK CENTRAL is inquiring for 500 automobile box cars of 50 tons' capacity.

THE LEHIGH VALLEY is inquiring for 500 four-hopper coal cars of 70 tons' capacity.

THE CHICAGO, MILWAUKEE & ST. PAUL is inquiring for prices on repairs to 770 coal cars.

THE LAKE ERIE, FRANKLIN & CLARION is inquiring for 50 hopper cars of 55 tons' capacity.

THE DELAWARE, LACKAWANNA & WESTERN is inquiring for 50 ballast cars and 25 eight wheel caboose cars.

THE RAJAH OIL & REFINING COMPANY has ordered 10 tank cars of 10,000 gal. capacity from the Standard Tank Car Company.

THE ATCHISON, TOPEKA & SANTA FE has cancelled its inquiry for 150 gondola cars of 70 tons' capacity, reported in the *Railway Age* of November 14.

THE WABASH has increased its inquiry to 2,000 single sheathed automobile box cars. This road was reported in the *Railway Age* of November 14 as inquiring for 1,000 automobile box cars.

THE ELECTRO BLEACHING GAS COMPANY, Niagara Falls, N. Y., has ordered 15 class V tank cars of 15 tons' capacity, for carrying liquid chlorine, from the General American Tank Car Corporation.

THE DENVER & RIO GRANDE WESTERN has ordered 500 gondola cars of 50 tons' capacity from the Pressed Steel Car Company

and 200 automobile cars from the Mount Vernon Car Manufacturing Company. Inquiry for this equipment was reported in the *Railway Age* of October 17.

### Passenger Cars

THE ATCHISON, TOPEKA & SANTA FE has authorized the purchase of 5 cafe observation cars.

THE ERIE has ordered 3 combination passenger and baggage gasoline rail cars and 3 combination passenger and baggage gasoline-electric rail cars from the J. G. Brill Company.

THE NEW YORK CENTRAL is inquiring for 25 steel coaches, 20 dining cars, 25 baggage cars, 25 combination baggage and mail cars, 9 combination passenger and baggage cars and 20 milk cars.

THE DELAWARE, LACKAWANNA & WESTERN is inquiring for 35 all-steel express cars, 40 steel underframe milk cars, 2 all-steel dining cars. This company has ordered two combination baggage and mail cars from the American Car & Foundry Company. Inquiry for this equipment was reported in the *Railway Age* of October 31.

### Iron and Steel

THE PERE MARQUETTE is inquiring for 12,000 tons of rail.

THE BALTIMORE & OHIO is inquiring for 3,000,000 tie plates.

THE ATCHISON, TOPEKA & SANTA FE is inquiring for 700 tons of structural steel.

THE NORFOLK & WESTERN will buy 5,000 tons of 130-lb. rail for 1926 renewals.

THE NEW YORK CENTRAL placed orders this week for tie plates and track fastenings.

THE ST. LOUIS-SAN FRANCISCO is inquiring for 30,000 tons of 100-lb. rail and 4,000 tons of 90-lb rail.

THE GRAND TRUNK has divided an order for 8,000 tons of rail between the Bethlehem Steel Company and the Illinois Steel Company.

THE ST. LOUIS SOUTHWESTERN has ordered 2,380 tons of rail from the Inland Steel Company and 4,120 tons from the Illinois Steel Company.

THE NEW YORK CENTRAL has ordered 750 tons of structural steel for bridge flooring for use in Chicago from the McClintic-Marshall Company.

THE CHESAPEAKE & OHIO has ordered 12,000 tons of rail from the Illinois Steel Company, 12,000 tons from the Inland Steel Company, and 6,000 tons from the Bethlehem Steel Company.

THE KANSAS CITY SOUTHERN has ordered 3,000 tons of rail from the Bethlehem Steel Company, 1,000 tons from the Inland Steel Company and 2,000 tons from the Illinois Steel Company.

THE ILLINOIS CENTRAL has ordered 1,500 tons of structural steel for a passenger station at Jackson, Miss., and 1,500 tons for a viaduct at Memphis, Tenn., from the Virginia Bridge & Iron Works. It has also ordered 1,600 tons for six bridges from the American Bridge Company.

### FREIGHT CAR REPAIR SITUATION

1924	Number freight cars on line	Cars awaiting repairs			Per cent of cars awaiting repairs	Month	Cars repaired		
		Heavy	Light	Total			Heavy	Light	Total
January 1.....	2,279,363	118,653	39,522	158,175	6.9	December .....	87,758	2,073,280	2,161,038
April 1 .....	2,274,750	125,932	46,815	172,747	7.6	March .....	77,365	2,213,158	2,290,523
July 1 .....	2,279,826	144,912	49,957	194,869	8.5	June .....	70,480	1,888,899	1,959,379
October 1.....	2,304,020	157,455	48,589	206,044	8.9	September .....	74,295	1,372,277	1,446,572
January 1, 1925.....	2,293,487	143,962	47,017	190,979	8.3	December .....	66,615	1,288,635	1,355,250
February 1.....	2,305,520	139,056	47,483	186,539	8.1	January, 1925.....	69,084	1,358,308	1,427,392
March 1.....	2,313,092	141,192	43,855	185,047	8.0	February .....	66,283	1,313,088	1,379,371
April 1.....	2,315,732	143,329	43,088	186,417	8.1	March .....	71,072	1,348,078	1,419,150
May 1.....	2,316,561	144,047	45,467	189,514	8.2	April .....	69,631	1,290,943	1,360,574
June 1.....	2,320,261	146,998	48,988	195,986	8.4	May .....	65,651	1,276,826	1,342,477
July 1.....	2,326,734	150,530	47,938	198,468	8.5	June .....	71,789	1,296,558	1,368,347
August 1.....	2,335,223	153,674	43,607	197,281	8.4	July .....	70,087	1,330,595	1,401,682
September 1.....	2,333,849	149,705	47,473	197,178	8.4	August .....	71,307	1,369,878	1,441,185
October 1.....	2,335,475	139,551	40,020	179,571	7.7	September .....	72,227	1,335,501	1,407,728

Data from Car Service Division Reports



## Machinery and Tools

THE BETHLEHEM STEEL COMPANY has ordered 124 Ryerson-Glader steel frame nail machines and 16 Ryerson-Glader barbed wire machines from Joseph T. Ryerson & Son, Inc. These machines are for use in its new plant at Sparrow Point, Maryland.

## Miscellaneous

THE VICTORIAN RAILWAYS will close bids at Melbourne, Victoria, Australia, on November 25 for 5,000 brake hoses. Specifications can be obtained from the Transportation Division of the Bureau of Foreign and Domestic Commerce, Washington, D. C.

## Signaling

THE CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS has ordered from the Union Switch & Signal Company an electro-mechanical interlocking, 28 mechanical and six electric units, for Morgan, Ohio.

THE BESSEMER & LAKE ERIE has given a contract to the Union Switch & Signal Company for the installation of an electro-mechanical interlocking at Branchton, Pa., 32-lever mechanical frame with 24-lever electric section.

THE ATLANTIC COAST LINE has ordered from the Union Switch & Signal Company material for an electro-pneumatic interlocking at Ashley, S. C., the crossing of the Southern Railway; a 31-lever machine, 26 switch movements, 40 signals, etc.

THE RICHMOND, FREDERICKSBURG & POTOMAC has ordered the Union Switch & Signal Company, following the governmental inspection of its 20 mile experimental section, to proceed with the installation of the Union continuous inductive automatic train control apparatus on its entire line from Richmond, Va., to Washington, D. C., a total of about 100 miles, double track.

THE CHICAGO, ROCK ISLAND & PACIFIC, according to an announcement made by the Regan Safety Devices Company, has ordered the installation of the Regan automatic train stop on its line from Davenport, Iowa, to Des Moines, Iowa, 174 miles. The number of locomotives to be equipped is 50. This contract covers the section of road named in the second order of the Interstate Commerce Commission and when the work shall have been completed, the whole of the government requirements will have been met; 339 miles of road, 150 locomotives.

TWENTY-FOUR CORN GROWERS of the South have qualified to compete for the silver cup, offered by the Southern Railway to the producer of the best ten ears exhibited at any one of 18 leading state and district fairs, held in the South this fall, and the trophy will be awarded to one of them as soon as arrangements can be made for a committee.



Painted by Arnesby Brown, R. A.

"Nottingham Castle—the Center of Mediaeval England"—a London, Midland & Scottish Poster

## Supply Trade News

Edward E. Roberts will in future represent, in the western part of New York state, the **Firth-Sterling Steel Company**, McKeesport, Pa.

F. W. Stubbs, formerly mechanical engineer of the Chicago Great Western, has been appointed railroad representative of the **A. M. Byers Company**, Pittsburgh, Pa. Mr. Stubbs will be located in Chicago.

E. A. Condit, Jr., sales manager of the **Rail Joint Company**, New York, who has been elected vice-president in charge



E. A. Condit, Jr.

of sales, with headquarters as heretofore at New York, as was announced in the *Railway Age* of November 14, graduated from Stevens Institute of Technology in 1902. Mr. Condit entered the service of the Continuous Rail Joint Company of America, at Newark, N. J., as a draftsman. He subsequently served through various inspection departments and then was assistant superintendent at the Troy mill, Troy, N. Y. About 1906, he opened a sales office in the Oliver building, Pittsburgh, Pa., and in 1918

he became sales manager of the Rail Joint Company.

The **W. C. West Company**, Chicago, has been appointed district representative of the **Allith-Prouty Company**, Danville, Ill., the **Decatur Malleable Iron Company** and the **Danville Malleable Iron Company**.

L. F. Miller, who recently became associated with the **Industrial Controller Company**, Milwaukee, Wis., will have charge of its railroad department, with headquarters in Chicago.



L. F. Miller

Mr. Miller was born in Toledo, O., but moved to Huntington, W. Va., where he attended high school. After graduating from high school he entered the shops of the Chesapeake & Ohio as an electrical apprentice. Later he worked in the motor and testing department of the Westinghouse Electric & Manufacturing Co. at East Pittsburgh, Pa. He has had extended experience in electrical construction, installation and maintenance, having been in charge of construction work for a large electrical contracting company for a time. He was also with the American Car & Foundry Co. at Detroit, Mich., returning to the Chesapeake & Ohio in 1919, where he was road foreman of electricians until November 1 of this year, when he resigned to accept his present position with the Industrial Controller Company.

**William M. Zintl**, of the advertising sales department of the Curtis Publishing Company, has been appointed director of sales of the paint and varnish division of the paint, lacquer and chemicals department of **E. I. du Pont de Nemours & Company, Incorporated**, Wilmington, Del.

**Scott Donahue**, who has been representing the Pollak Steel Company of Cincinnati, Ohio, and the Edgewater Steel Company of Pittsburgh, Pa., with an office at 2615 Grand Central Terminal, New York, has also been appointed Eastern sales representative of the **Graham Bolt & Nut Company**, Pittsburgh, Pa.

**G. W. Mead**, president of the **Linde Air Products Company**, New York, has been elected chairman of the board; **W. F. Barrett**, vice-president, has been elected president; **R. R. Browning** has been elected vice-president in charge of sales activities and **J. A. Rafferty**, vice-president in charge of engineering, manufacturing and research.

**M. J. Carney**, president of the **Prest-O-Lite Co., Inc.**, New York, has been elected chairman of the board; **William F. Barrett**, vice-president has been elected president; **Ralph R. Browning** has been elected vice-president in charge of acetylene sales activities and **R. J. Hoffman**, has been re-elected vice-president in charge of storage battery and automotive divisions.

The **American Car & Foundry Company** has established an eastern sales district, in charge of **W. E. Hedgcock**, assistant vice-president, with headquarters in New York. **C. D. Terrell**, as assistant vice-president, has been placed in charge of the Chicago sales district, succeeding **Herbert W. Wolff**, vice-president, who recently became also manager of sales, with headquarters at New York.

**L. Wechsler** now represents the **Canton Foundry & Machine Company**, Canton, Ohio, as general eastern sales manager of its New York City office at 203 East Fifteenth street, for the sale of its alligator shears, portable floor cranes and industrial turntables. Mr. Wechsler recently severed his connections as sales manager of the New York office of the **Falls Hollow Staybolt Company**, Cuyahoga Falls, Ohio.

The **G. M. Basford Company**, at a special meeting of its board of directors, elected **Roger L. Wensley** president and director to fill the vacancy caused by the death of G. M. Basford. Other officers and directors of the company remain the same. Mr. Wensley has been associated with the G. M. Basford Company for the past eight years, the last three of which were in the capacity of vice-president. The G. M. Basford Company will continue the ideals and policies followed during Mr. Basford's administration.

**J. H. Whiting**, president and treasurer of the **Whiting Corporation**, Harvey, Ill., has been elected chairman of the board. **Col. T. S. Hammond**, who for many years has been vice-president and secretary, succeeds Mr. Whiting as president and treasurer. **R. A. Pascoe** succeeds Col. Hammond as secretary. **R. H. Bourne**, vice-president and sales manager of the Whiting Corporation, succeeds Col. T. S. Hammond as president of the **Grindle Fuel Equipment Company**, a subsidiary of the Whiting Corporation. **N. S. Lawrence**, vice-president and assistant sales manager of the Whiting Corporation, is president of the **Swenson Evaporator Company**, another subsidiary of the Whiting Corporation. J. H. Whiting will remain actively engaged in the business, and no change of policy is involved on the part of the Whiting Corporation and its two subsidiaries.

### Shipments of Locomotives

The Department of Commerce has prepared the following table of shipments of railroad locomotives, from the principal manufacturing plants:

Year and Month 1924	Shipments			Unfilled orders end of month		
	Total	Domestic	Foreign	Total	Domestic	Foreign
January .....	151	147	4	376	344	32
February .....	99	92	7	499	466	33
March .....	132	128	4	534	494	40
April .....	73	63	10	640	586	54
May .....	111	93	18	643	589	54
June .....	145	134	11	531	462	69
July .....	140	130	10	483	416	67

Year and Month 1924	Shipments			Unfilled orders end of month		
	Total	Domestic	Foreign	Total	Domestic	Foreign
August .....	139	121	18	361	306	55
September .....	104	79	25	386	333	53
October .....	96	78	18	462	398	64
Total (10 mos.)....	1,190	1,065	125	...	...	...
1925						
January .....	90	45	45	407	351	56
February .....	85	73	12	397	343	54
March .....	109	93	16	447	351	96
April .....	92	82	10	477	362	115
May .....	96	68	28	467	353	114
June .....	110	61	49	397	300	97
July .....	66	58	8	378	283	95
August .....	104	91	13	309	225	84
September .....	94	50	44	363	296	67
October .....	79	54	25	497	397	100
Total (10 mos.)....	925	675	250	...	...	...

### Obituary

Four General Electric Company men were killed and two were injured in the train wreck which occurred on the Pennsylvania Railroad near Plainsboro, N. J., on November 12. The dead include **R. D. Reed**, a member of the General Electric industrial department and in charge of the sale of electric arc welding equipment; **Mark A. Atuesta** and **Arthur W. Gross**, members of the manufacturing department, and **John C. Horstman** of the manager's staff at the Schenectady plant. Among the injured were **D. H. Deyoe** of the industrial engineering department of the company and **Thomas Wry** of the Lynn River works. All the men had met in Baltimore in connection with the Inter-works welding committee of the General Electric Company and were en route to the Bloomfield plant when the accident occurred.

### Trade Publications

**SAFETY COACHES.**—The chassis and motors used in the construction of Fageol safety coaches are fully described in an attractive 16-page booklet issued by the Fageol Company, Kent, Ohio. The features of particular interest in the body construction of the parlor car, street car and inter-city models are then described and illustrated. Numerous other illustrations show the Fageol safety coach in use in various parts of the United States.

**BRIDGEPORT BRASS.**—In commemoration of its sixtieth anniversary, the Bridgeport Brass Company, Bridgeport, Conn., has had reprinted and is distributing in pamphlet form an account of its development from 1865 up to the present day. Following an outline of the personnel of the company in 1865, the first American micrometer as it was originated in the shop of the Bridgeport Brass Company is described, and its subsequent development illustrated. Interesting references are made to the early use of brass in hoop skirts, clock parts, lanterns, telephone parts, condenser tubes, trolley wires, etc. The facilities now used in the Bridgeport shops for the production of sheet brass from copper and zinc are then pictured and several of the operations described.

**ROLLER BEARINGS FOR INDUSTRIAL EQUIPMENT.**—The Hyatt Roller Bearing Company, Newark, N. J., has issued Dimension and Load Bulletin No. 1559, describing the two general types of Hyatt roller bearings and listing the principal items which must be considered in the determination of the size of bearing required to safely carry a given load. A bearing capacity formula, in which the influence of each of these considerations on the capacity of a given bearing is brought into play by the introduction of factors for each item, is then given and the development of the factors in the equation described. Tables I, II, III and IV give the basic capacities and dimensions of bearings with split outer races—no inner races; with split outer races—solid inner races; with solid outer races—no inner races, and with solid outer races—solid inner races, respectively.

**HOME SEEKERS' EXCURSION RATES** from Illinois, Iowa, Minnesota, Missouri, Wisconsin and other central western states to California will be put into effect by the Southern Pacific, the Union Pacific and the Atchison, Topeka & Santa Fe, as an aid in taking settlers to California during 1926. Tickets will be available for parties of 15 or more persons and will be sold on the basis of one fare plus \$5 for the round trip, with a return limit of 12 days.



## Railway Construction

**ATCHISON, TOPEKA & SANTA FE.**—Approximately 6 miles of second track will be constructed between Phoenix, Ariz., and Glendale, at a cost of \$340,000, and a 500 ft. extension of the icing dock at Glendale will also be constructed.

**CENTRAL OF NEW JERSEY.**—This company is planning to construct an engine terminal at Bethlehem, Pa.

**CENTRAL OF NEW JERSEY.**—This company has awarded the following contracts to Anderson & Wheeler, Inc.: For the construction of a highway underpass and approaches thereto (exclusive of bridge steel and deck) at Hudson county boulevard, Bayonne, N. J., \$155,466; and for a similar structure at Avenue A in the same city, \$130,269.

**CHICAGO & NORTH WESTERN.**—Relocation of the line in the vicinity of Shorewood, just north of Milwaukee, Wis., at a cost of approximately \$1,000,000 has been authorized.

**CHICAGO, BURLINGTON & QUINCY.**—Bids are being received for the construction of a structural steel and concrete railway mail building at Omaha, Neb., reported in the *Railway Age* of September 12. The building will be four stories in height and its dimensions will be 119 ft. by 264 ft.

**CHICAGO, MILWAUKEE & ST. PAUL.**—The receivers have applied to the Interstate Commerce Commission for a certificate authorizing the construction of an extension of 10½ miles in Freeborn county, Minn.

**GRAND TRUNK WESTERN.**—Plans have been prepared for the construction of an 80-ft. span bridge with approaches over the Black river at Port Huron, Mich., to cost approximately \$250,000.

**GREAT NORTHERN.**—A contract has been awarded to the Grant-Smith Construction Company, Seattle, Wash., for the construction of a power plant and dam near Chelan, Wash. The contract for the construction was placed by the Washington Water Power Company, which has a contract with the Chelan Electric Company, a subsidiary of the Great Northern, for the construction and operation of the water power facilities to be used in the projected electrification of the railway's line over the Cascade mountains.

**PENNSYLVANIA.**—A contract has been awarded to P. T. Clifford & Son, Valparaiso, Ind., for the construction of a second track and change of grade between St. Jacob, Ill., and Pierron (10.3 miles) at a total cost estimated at \$900,000. A contract has been awarded to the T. J. Foley Company, Pittsburgh, Pa., for the construction of a bridge to carry the company's tracks over entrance road, Camden, N. J., the approach to the new highway bridge across the Delaware river; estimated cost, \$100,000.

**SOUTHERN PACIFIC.**—The contract for the grading and construction of buildings in connection with the change of line on the Galveston, Harrisburg & San Antonio between Langtry, Tex., and Osman, reported in the *Railway Age* of October 3, has been awarded to the List Construction Company, Kansas City, Mo. The cost of the entire work, including track, station buildings, water and fuel oil facilities and signals, is estimated at approximately \$1,000,000.

**TEXAS & PACIFIC.**—This company, the Kansas City Southern and the Kansas City, Shreveport & Gulf (a subsidiary of the K. C. S.), have been authorized by the Interstate Commerce Commission to construct about 3.9 miles of line in Caddo Parish, La., to cost approximately \$331,000.

**UNION PACIFIC.**—A contract has been awarded to the Utah Construction Company, Ogden, Utah, for grading and culvert work in the construction of 26 miles of second track from Echo, Utah, to Gateway, a distance of 26 miles, reported in the *Railway Age* of November 14.

**WABASH.**—A contract has been awarded to the Roberts & Schaefer Company, Chicago, for the construction of a coaling station at St. Louis, Mo., to cost \$35,000.

## Railway Financial News

**BALTIMORE & OHIO.**—*Authorized to Pledge Bonds Los Angeles Junction Stock.*—The Interstate Commerce Commission has granted authority for the issuance of \$100,000 common stock to be sold at par to the Los Angeles Corporation, which controls the railroad and an industrial district in Los Angeles County, Calif. The proceeds of the stock are to be used for the acquisition of equipment and for working capital.

**BALTIMORE & OHIO.**—*Bonds.*—The Interstate Commerce Commission has granted authority for the Baltimore & Ohio to pledge \$6,125,280 of Pittsburgh Junction & Middle Division first mortgage 3½ per cent bonds with the trustee of the Pittsburgh, Lake Erie & West Virginia System refunding mortgage; to issue \$6,125,000 of Pittsburgh, Lake Erie & West Virginia System refunding mortgage 4 per cent bonds and to pledge them with the trustee of the refunding and general mortgage; and to issue \$6,125,000 of refunding and general mortgage 6 per cent bonds, series C, and to pledge all or any part thereof from time to time as collateral security for short term notes. The purpose of this arrangement is to cover the refunding of the Pittsburgh Junction & Middle Division first mortgage 3½ per cent bonds which mature on November 1.

**BOSTON & MAINE.**—*Hearings on Reorganization Plan Postponed.*—The Massachusetts Public Utilities Commission, which was to hold hearings on November 17 on the reorganization plan, postponed the hearing to December 1 on request of the counsel for the railroad, who desired additional time before presentation of the case.

**CENTRAL OF GEORGIA.**—*Equipment Trust.*—The Interstate Commerce Commission has approved the issuance of \$3,840,000 equipment trust certificates, series Q, to be sold at not less than 96.89 per cent of par and accrued dividends. The equipment trust agreement will be dated November 1, 1925, and will mature in equal annual installments from 1926 to 1940. The interest rate is 4½ per cent. The equipment includes 15 locomotives and 1,927 wooden, ventilated box cars of a total approximate cost of \$5,145,887.

**CHICAGO, MILWAUKEE & ST. PAUL.**—*New Bondholders' Committee.*—Edwin C. Jameson, president of the Globe & Rutgers Fire Insurance Company, has been made chairman of a new bondholders' defense committee. The committee says that it represents large amounts of junior bonds and proposes to intervene in the receivership proceedings. It offers the following objections to the Kuhn-Loeb, National City Company reorganization plan.

1. Despite the fact that the equity behind the present junior bonds has a value nearly double their face amount, the junior bondholders are asked to accept new adjustment bonds subordinate not only to the present senior bonds, but to two intermediate issues, of which one may aggregate twice the amount of the capital stock, and the other is to be presently issued in the amount of \$60,698,820. Interest on the new adjustment bonds is not only contingent and non-cumulative for some years, but subject to diminution by diversion of earnings otherwise available to the amount of \$25,000,000.

2. The new \$60,698,820 issue is allotted for subscription to the present stockholders, with the result that the rights of the present junior bondholders will be postponed to the rights of present stockholders under the allotment.

3. Not only does the plan thus decrease the security, and render contingent and subject to diminution the interest, of the new adjustment bonds offered to assenting junior bondholders, but it bears internal evidence that the reorganization managers expect to buy in the property at about one-third of the equity above the senior bonds. This means that junior bondholders not assenting to the plan may expect to receive about one-half of the amount of their bonds, although the equity securing them is about twice the amount.

4. The treatment of the government loans is not only unsatisfactory, but involves a treatment of the junior bonds in the hands of the public more unfavorable than that of similar bonds held as collateral by the government.

5. A fund of \$10,000,000 is set up with inadequate restrictions for its expenditure, which can be used for fees and expenses of committees, managers, underwriters, counsel, etc., and any unexpended balance of which may be returned to the stockholders as provided in the plan.

6. The voting trust provisions give no assurance that the control of the property for the next five years will be vested in the real owners of the securities or that there will be any change in the management which failed to avert the present catastrophe.

Despite the unjust features of the plan which have been pointed out, there is an apparent effort to force a sale of the property at a time when vital questions affecting the value and future earning power of the property are pending.

**CINCINNATI, NEW ORLEANS & TEXAS PACIFIC.—Stock Dividend.**—Announcement was made on November 17 that this company will ask Interstate Commerce Commission approval for the issuance of a 200 per cent common stock dividend amounting to \$6,000,000. The dividend will be payable the latter part of December to stock of record December 1. The larger part of the stock would accrue to the Southwestern Construction Company which owns \$2,049,300 of the \$2,990,000 common stock outstanding. The Cincinnati, New Orleans & Texas Pacific operates the Cincinnati Southern which is leased from the city of Cincinnati. The Southwestern Construction Company, which holds the controlling interest, has outstanding \$3,000,000 of stock, of which the Baltimore & Ohio owns \$750,000; the Alabama Great Southern \$975,100 and the Southern Railway \$323,500, and interests affiliated with the Southern also own \$448,700 of stock formerly held by the Alabama, New Orleans, Texas & Pacific Junction Railways Company. The Cincinnati, New Orleans & Texas Pacific on December 31, 1924, had a corporate surplus of \$31,185,501, including \$14,524,481 additions to property through income and surplus, and \$16,661,021 credit balance to profit and loss. The company pays 6 per cent dividends on the common stock and has paid semi-annual extra dividends of  $3\frac{1}{2}$  per cent.

**MONROE & TEXAS.—Abandonment.**—This company has been granted permission by the Interstate Commerce Commission to abandon as to interstate and foreign commerce its line from a connection with the Vicksburg, Shreveport & Pacific at Alpena to Lenwil, Ouachita Parish, La., a distance of 2.51 miles. This line served a lumber operation since abandoned.

**NEW YORK, CHICAGO & ST. LOUIS.—New York Commission Approves Merger.**—The Public Service Commission of New York has approved the leasing of the New York, Chicago & St. Louis Railroad and the Erie to the New York, Chicago & St. Louis Railway Company. Provisions in reference to the acquirement of capital stock of the two railroad companies by the new company were also approved.

**NEW YORK CENTRAL.—Hudson River Connecting Lease Extended.**—The Interstate Commerce Commission has authorized the New York Central to lease for another year from November 14, 1925, the Hudson River Connecting Railroad.

**SEABOARD AIR LINE.—Will Acquire Tampa & Jacksonville.**—The Seaboard Air Line Railway has entered into an agreement with the bondholders' committee of the Tampa & Jacksonville whereby it will secure the common stock of the road in case the bondholders bid in the property at a sale under court order. The Guaranty Trust Company is bringing foreclosure proceedings against the Tampa & Jacksonville as the result of interest default on its mortgage bonds. If the bondholders' committee bid in the property when sold, a new corporation will be formed, and the common stock of this company will be turned over to the Seaboard at a price to be determined upon. The Tampa & Jacksonville extends from Sampson City, Fla., to Emathla, 56 miles, and connects with the Seaboard at Gainesville, Fla. Interest on the company's first mortgage bonds has not been paid since 1914.

**SAN LUIS SOUTHERN.—Sale.**—The sale of the San Luis Southern under decree of foreclosure, which was to have taken place at San Luis, Colo., on October 24, was postponed until January 20, 1926.

**SOUTHERN.—Bonds.**—This company has applied to the Interstate Commerce Commission for authority to nominally issue \$1,570,000 of development and general mortgage 4 per cent bonds.

### Dividends Declared

Alabama Great Southern.—Ordinary,  $3\frac{1}{2}$  per cent, payable December 28 to holders of record November 27. Preferred,  $3\frac{1}{2}$  per cent, payable February 15 to holders of record January 15.  
American Railway Express Company.—\$1.50, quarterly, payable December 31 to holders of record December 15.  
Canadian Pacific.—Common,  $2\frac{1}{2}$  per cent, quarterly, payable December 31 to holders of record December 1.  
Chicago & North Western.—Common, 2 per cent; preferred  $3\frac{1}{2}$  per cent; both payable December 31 to holders of record December 1.  
Chicago, St. Paul, Minneapolis & Omaha.—Preferred, 5 per cent, payable December 31 to holders of record December 1.  
North Pennsylvania.—\$1, quarterly, payable November 25 to holders of record November 16.  
Southern Pacific Company.— $1\frac{1}{2}$  per cent, quarterly, payable January 2 to holders of record November 27.  
Union Pacific.—Common,  $2\frac{1}{2}$  per cent, quarterly, payable January 2 to holders of record December 1.

## Railway Officers

### Executive

**James T. Gillick**, general manager of the Eastern lines of the Chicago, Milwaukee & St. Paul, with headquarters at Chicago, has been promoted to chief operating officer, with the same headquarters, succeeding B. B. Greer, elected president of the New York Air Brake Company. Mr. Gillick was born on June 1, 1870, at Glencoe, Minn., and entered railway service in 1885 as a telegraph operator on the Chicago, Milwaukee & St. Paul. He was promoted to train dispatcher in 1890, and was later promoted to chief dispatcher, continuing in that capacity until 1903, when he was promoted to trainmaster. Mr. Gillick was promoted to division superintendent in 1907, and held that position until 1913, when he was promoted to assistant to the general manager, with headquarters at Chicago. He was promoted to assistant general manager, with the same headquarters, in July, 1917, and was promoted to general manager of the Eastern lines in November of that year. Mr. Gillick continued in that capacity until his recent promotion to chief operating officer.



J. T. Gillick

**Hugh Neill**, vice-president and secretary of the Southern Pacific and vice-president of the Pacific Fruit Express, New York, has been elected president of the Pacific Fruit Express to succeed F. W. Charske, who now becomes a vice-president of the Pacific Fruit Express. Mr. Charske is also a vice-president and comptroller of the Union Pacific.

**F. H. McGuigan, Jr.**, who has been appointed engineering assistant to the executive vice-president of the Gulf Coast Lines and the International-Great Northern, with headquarters at Houston, Tex., was born on March 15, 1885, at Chillicothe, Mo., and graduated at the Massachusetts Institute of Technology in 1908. He entered railway service in July of that year in the engineering department of the Michigan Central, working on the Detroit River tunnel and terminal. He was appointed resident engineer on the Grand Trunk on the Toronto grade separation in 1910 and in 1912 was promoted to assistant engineer of construction at Montreal. Mr. McGuigan was later promoted to assistant to the chief engineer and held that position until 1919, when he was appointed assistant engineer in the office of the regional director of the Central Western region of the United States Railroad Administration. He was promoted to regional en-



F. H. McGuigan, Jr.



gineer of the Central Western, Northwestern and Southwestern regions in 1920 in charge of liquidation of claims for way and structures. In 1923 Mr. McGuigan was appointed assistant to the president of the Railway Car Manufacturers' Association at New York, and he held that position until his recent appointment as engineering assistant to the executive vice-president of the Gulf Coast Lines and the International-Great Northern.

**W. G. Lerch**, who has been elected vice-president and secretary of the Chicago Great Western, with headquarters at Chicago, was born on June 16, 1871, at Erie, Pa., and entered railway service in January, 1894, as a stenographer in the office of the general manager of the Duluth, Missabe & Northern. After being promoted to chief clerk to the vice-president, he was employed as a clerk in the office of the general superintendent of the Chicago, St. Paul, Minneapolis & Omaha in January, 1897, and in September of that year was employed in a similar capacity in the office of the vice-president of the Missouri-Kansas-Texas. Mr. Lerch was later appointed chief clerk in charge of purchases of the Colorado Midland and he held that position until September, 1900, when he was employed as secretary and chief clerk to the president of the Chicago & Alton. In 1908 Mr. Lerch was appointed assistant to the president of the Mexican Central, and in April of the following year was appointed assistant to the chairman of the board of directors of the Tennessee Central. He was appointed assistant to the president of the Chicago Great Western in September, 1909, and after being elected also secretary in July, 1918, held that position until his recent promotion to vice-president and secretary.

### Operating

**S. W. Wheeler** has been appointed assistant trainmaster of the Virginia division of the Seaboard Air Line, with headquarters at Raleigh, N. C.

**G. B. McClellan**, who has been promoted to superintendent of the Atlantic Coast Line, at Rocky Mount, N. C., was born on December 4, 1875, at Charlotte, N. C., and was educated in the public schools. He entered railway service on April 1, 1891, as an operator on the Norfolk district of the Atlantic Coast Line, and in 1895, he became claim clerk and relief agent. In 1901, he was promoted to yardmaster, and in 1902, to chief clerk to the superintendent of the Norfolk district. He became chief dispatcher of the Charleston district in 1904, and from 1905 to 1906, was trainmaster at Charleston. In 1907, he became superintendent of the Fayetteville district. During 1907 the Fayetteville and Richmond districts were consolidated. From 1908 to 1911, he was trainmaster of the Richmond district, and in 1912, he was transferred to the Fayetteville district in the same capacity, which position he was holding at the time of his recent promotion.



G. B. McClellan

**H. E. Bailes** has been appointed trainmaster of the Grand Trunk, with jurisdiction over the Flint subdivision and the Nichols yard, succeeding **H. C. White**, who has been appointed superintendent of terminals at Port Huron, Mich., succeeding **S. L. Trusler**, retired.

**A. B. Woodard**, now acting assistant trainmaster of the Seaboard Air Line, has been appointed assistant trainmaster of the Alabama division, with headquarters at Richland, Ga., suc-

ceeding **H. G. Harden**, deceased. **G. R. Barber** has been appointed assistant trainmaster of the South Carolina division, with headquarters at Savannah, Ga.

**H. A. Tait** has been appointed trainmaster of the Grand Trunk at Durand, Mich., and will have charge of the territory from mile post 10.81 to Durand, and also the Durand Terminal. **E. O. Dunn** has been appointed trainmaster, with headquarters at Durand, with jurisdiction over the Grand Haven subdivision (excluding the Durand Terminal) and the Muskegon and Saginaw subdivisions.

**O. N. Harstad**, assistant general manager of the Eastern lines of the Chicago, Milwaukee & St. Paul, with headquarters at Chicago, has been promoted to general manager, with the same headquarters, succeeding **J. T. Gillick**, promoted to chief operating officer. **C. H. Buford**, general superintendent of the Southern district, with headquarters at Chicago, has been promoted to assistant general manager in place of Mr. Harstad.

**F. W. Stoops**, assistant road foreman of engines of the Eastern division of the Pennsylvania, has been appointed acting freight trainmaster of the Panhandle division, with headquarters at Pittsburgh, Pa., succeeding **F. C. Coulter**, who has been granted leave of absence. **W. L. Longstreth**, assistant road foreman of engines of the Panhandle division, with headquarters at Columbus, O., has been promoted to assistant trainmaster of the Eastern division, with headquarters at Pittsburgh.

**W. J. Edwards**, formerly general superintendent of the Southwestern district of the Southern, Lines West, with headquarters at Chattanooga, Tenn., has been appointed assistant to the general manager, with headquarters at Birmingham, Ala. **C. Chandler**, formerly general superintendent of the Southeastern district, with headquarters at Macon, Ga., has been appointed general superintendent of the Southwestern district, with headquarters at Chattanooga, Tenn. **D. B. Nolan**, heretofore, general superintendent of the Birmingham division and the Northern Alabama (Southern), with headquarters at Birmingham, Ala., has been appointed general superintendent of the Southeastern district, with headquarters at Macon, Ga. **J. C. Austin**, superintendent of the Alabama Great Southern (Southern), with headquarters at Birmingham, Ala., has been appointed superintendent of the Birmingham division and the Northern Alabama, with the same headquarters. **R. C. Reid**, formerly superintendent of the New Orleans & Northeastern (Southern), with headquarters at Hattiesburg, Miss., has been appointed superintendent of the Alabama Great Southern, with headquarters at Birmingham, Ala. **J. T. Moon**, roadmaster of the New Orleans & Northeastern and the New Orleans Terminal Company at Hattiesburg, Miss., has been appointed superintendent of the New Orleans & Northeastern, with the same headquarters.

**E. W. Lollis**, superintendent of the Hastings and Dakota division of the Chicago, Milwaukee & St. Paul, with headquarters at Montevideo, Minn., has been promoted to general superintendent of the Southern district, with headquarters at Chicago, succeeding **C. H. Buford**, promoted to assistant general manager. **P. H. Nee**, superintendent of the Wisconsin Valley division, with headquarters at Wausau, Wis., has been transferred to the Hastings and Dakota division, in place of Mr. Lollis. **N. P. Thurber**, superintendent of the Northern and Chicago and Milwaukee divisions, with headquarters at Milwaukee, Wis., has been transferred to the Wisconsin Valley division succeeding Mr. Nee. **D. W. Kelly**, superintendent of terminals at Milwaukee, Wis., has been given extended jurisdiction to include the Chicago and Milwaukee division, with the same headquarters, and **O. N. Frick**, superintendent of the Lacrosse division, with headquarters at Portage, Wis., has been given extended jurisdiction to include the Northern division, both succeeding Mr. Thurber. **W. M. Weidenhamer**, general superintendent of the Northern district, with headquarters at Minneapolis, Minn., has been appointed special representative reporting to the chief operating officer, with headquarters at Chicago, a newly created position. **C. S. Christoffer**, superintendent of the Iowa and Dakota division, with headquarters at Mason City, Iowa, has been promoted to

general superintendent of the Northern district in place of Mr. Weidenhamer. **W. F. Ingraham**, assistant superintendent of the Chicago Terminal, with headquarters at Bensenville, Ill., has been promoted to superintendent to the Iowa and Dakota division, succeeding Mr. Christoffer. **H. F. Gibson**, assistant superintendent of the Iowa division, with headquarters at Perry, Iowa, has been transferred to the Chicago terminal, succeeding Mr. Ingraham. **W. L. Schmitz**, trainmaster of the Dubuque division, with headquarters at Dubuque, Iowa, has been promoted to assistant superintendent of the Iowa division, in place of Mr. Gibson. **D. T. Bagnell** has been appointed trainmaster of the Dubuque division, in place of Mr. Schmitz.

### Traffic

**S. C. Forman**, traveling freight agent of the Virginian, with headquarters at Chicago, has been promoted to general agent, with the same headquarters.

**A. S. Cuthbertson**, general agent of the Colorado & Southern, with headquarters at Pueblo, Colo., has retired from active service on account of ill health.

**C. A. Redmond**, city passenger agent of the Union Pacific, with headquarters at Glendale, Cal., has been promoted to general agent, with the same headquarters, a newly created position.

**G. I. Martin**, general agent of the Western Pacific, with headquarters at Reno, Nev., has been transferred to Salt Lake City, Utah, succeeding **A. J. Cronin**, who has been appointed assistant general freight and passenger agent of the Denver & Rio Grande Western at Salt Lake City. **J. P. Farley** has been appointed general agent at Reno in place of Mr. Martin.

**R. M. McWilliams**, general freight agent of the Missouri Pacific, with headquarters at Little Rock, Ark., has been promoted to executive general agent, with headquarters at New Orleans, La., a newly created position. **H. L. Traber**, formerly one of the receivers of the Kansas, Oklahoma & Gulf, has been appointed general freight agent at Little Rock in place of Mr. McWilliams.

**A. A. Brown**, assistant general baggage agent of the Pennsylvania, has been promoted to the position of general baggage agent, to succeed **W. F. McPhail**, who will retire at the close of the present month under the pension regulations, having reached the age limit of 70 years. Mr. Brown will assume his new duties on December 1. His present position as assistant general baggage agent will be filled by the advancement of **A. C. Yorke**, now chief clerk in the general baggage department of the company.

**A. F. Meyer**, assistant general freight agent of the Cleveland, Cincinnati, Chicago & St. Louis, with headquarters at Cincinnati, Ohio, has been transferred to Louisville, Ky., instead of promoted to general freight agent as reported in the *Railway Age* of October 10. **W. L. Dewey**, chief of the tariff bureau at Cincinnati has been promoted to assistant general freight agent, with the same headquarters in place of Mr. Meyer.

**B. W. Robbins**, assistant general freight and passenger agent of the Denver & Rio Grande Western, with headquarters at Salt Lake City, Utah, has been promoted to general freight agent, with headquarters at Denver, Colo. **A. J. Cronin**, general agent, freight department, of the Western Pacific, with headquarters at Salt Lake City, has been appointed assistant general freight and passenger agent of the Denver & Rio Grande Western, with the same headquarters, in place of Mr. Robbins.

**James W. Switzer**, who has been promoted to general passenger agent of the Michigan Central, with headquarters at Chicago, was born on April 18, 1881, at Galesburg, Ill., and graduated from the University of Iowa in 1899. He entered railway service in 1901 as a telegraph operator on the Chicago, Burlington & Quincy, later holding successively the positions of ticket seller, city passenger agent and passenger rate clerk. Mr. Switzer was later appointed rate clerk on the Illinois Central and subsequently entered the service of the Michigan

Central as chief rate clerk and chief clerk in the traffic department at Detroit, Mich. He was promoted to assistant general passenger agent, with headquarters at Detroit, in November, 1917, and continued in that capacity until his recent promotion to general passenger agent, with headquarters at Chicago.

**W. W. Blakely**, assistant to the general freight traffic manager of the Baltimore & Ohio, with headquarters at Baltimore, Md., has been promoted to assistant freight traffic manager of the Southwest region, with headquarters at Cincinnati, O., a newly created position. He was born on October 14, 1866, at Louisville, Ky., and entered railway service in 1887 as a telegraph operator on the Ohio & Mississippi, now a part of the Baltimore & Ohio. He subsequently served as a contracting agent of the Louisville, Evansville & St. Louis, now a part of the Southern; chief clerk to the traffic manager of the Louisville, St. Louis & Texas, now a part of the Louisville, Henderson & St. Louis; and traveling freight agent on the Atchison, Topeka & Santa Fe. He was later appointed traveling freight agent of the Baltimore & Ohio and was subsequently promoted successively to southern freight agent, commercial agent, division freight agent and chief of the interchange commodity bureau. Mr. Blakely was later promoted to assistant general freight agent and then to general freight agent, with headquarters at Pittsburgh, Pa. He was promoted to assistant to the general freight traffic manager in March, 1924, and held that position until his recent promotion to assistant freight traffic manager of the Southwest region.



W. W. Blakely

### Mechanical

**J. S. Ford**, road foreman of locomotives on the Chicago, Burlington & Quincy, with headquarters at Aurora, Ill., has been promoted to assistant master mechanic of the Galesburg division, with headquarters at Galesburg, Ill.

**E. H. Weigman** has been appointed master car builder of the Kansas City Southern, with jurisdiction over the entire line and headquarters at Pittsburg, Kan., succeeding J. Gutteridge, who has been assigned to other duties. Mr. Weigman was born at DeSoto, Mo., on July 29, 1892. In 1909 he entered the service of the Louisville & Nashville at East St. Louis, Ill., as a car repairer. He was later promoted to supervisor of the car department, with headquarters at Louisville, Ky., in which position he remained for eight years. For a period of six months in 1917, Mr. Weigman was assistant secretary of the old American Railway Master Mechanics' and Master Car Builders' Association, under Joseph W. Tayler, secretary. For four years he was connected also with the Atlantic Coast Line as a traveling instructor in the car department, his headquarters being at Wilmington, N. C.

### Purchasing and Stores

**D. W. Metzendorf** has been appointed acting general storekeeper of the Alaska Railroad, with headquarters at Anchorage, Alaska, succeeding Robert Huntley, who has resigned.

### Obituary

**W. F. Weed**, formerly general freight agent of the Chicago Junction and later of the Indiana Harbor Belt, who retired from railway service in 1900, died in Hollywood, Cal., on November 16.